

Teppo Jakonen

Knowing Matters

How Students Address Lack of
Knowledge in Bilingual Classroom
Interaction



JYVÄSKYLÄ STUDIES IN HUMANITIES 235

Teppo Jakonen

Knowing Matters

How Students Address Lack of Knowledge
in Bilingual Classroom Interaction

Esitetään Jyväskylän yliopiston humanistisen tiedekunnan suostumuksella
julkisesti tarkastettavaksi yliopiston vanhassa juhlasalissa S212
marraskuun 22. päivänä 2014 kello 12.

Academic dissertation to be publicly discussed, by permission of
the Faculty of Humanities of the University of Jyväskylä,
in building Seminarium, auditorium S212, on November 22, 2014 at 12 o'clock noon.



UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2014

Knowing Matters

How Students Address Lack of Knowledge
in Bilingual Classroom Interaction

JYVÄSKYLÄ STUDIES IN HUMANITIES 235

Teppo Jakonen

Knowing Matters

How Students Address Lack of Knowledge
in Bilingual Classroom Interaction



UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2014

Editors

Tarja Nikula

Centre for Applied Language Studies, University of Jyväskylä

Pekka Olsbo, Ville Korhokangas

Publishing Unit, University Library of Jyväskylä

Jyväskylä Studies in Humanities

Editorial Board

Editor in Chief Heikki Hanka, Department of Art and Culture Studies, University of Jyväskylä

Petri Karonen, Department of History and Ethnology, University of Jyväskylä

Paula Kalaja, Department of Languages, University of Jyväskylä

Petri Toiviainen, Department of Music, University of Jyväskylä

Tarja Nikula, Centre for Applied Language Studies, University of Jyväskylä

Raimo Salokangas, Department of Communication, University of Jyväskylä

URN:ISBN: 978-951-39-5934-0

ISBN 978-951-39-5934-0 (PDF)

ISSN 1459-4331

ISBN 978-951-39-5933-3 (nid.)

ISSN 1459-4323

Copyright © 2014, by University of Jyväskylä

Jyväskylä University Printing House, Jyväskylä 2014

ABSTRACT

Jakonen, Teppo

Knowing matters: how students address lack of knowledge in bilingual classroom interaction

Jyväskylä: University of Jyväskylä, 2014, 306 p.

(Jyväskylä Studies in Humanities

ISSN 1459-4323; 235)

ISBN 978-951-39-5933-3 (nid.)

ISBN 978-951-39-5934-0 (PDF)

This dissertation investigates how secondary school students initiate and conduct interaction to address lack of knowledge in a Content and Language Integrated (CLIL) classroom and considers how such interactions may relate to learning. Theoretically, the study draws on prior conversation analytic (CA) research on epistemics and language learning (CA-SLA) and research on CLIL classroom interaction. The data are 15 consecutive, video-recorded history lessons taught in English over two months to 14-15-year-old native Finnish-speaking students. Using this corpus, a collection of sequences was created in which a student indicates lack of knowledge regarding some aspect of the on-going instruction or task in a sequence-initial position. Besides these sequences, the analysis makes use of the pedagogic tasks and texts used during the lessons.

The focal sequences are shown to involve three interactional and epistemic tasks: recruitment of a knowledgeable recipient, identification of a knowledge gap, as well as answer production and validation. The findings show that students typically address their peers instead of the teacher to resolve lack of knowledge. They also illustrate that students can convey an implication that they do not know something in many ways, not only through talk but also by means of embodied action. Moreover, the fact that peer answers can involve complex negotiations for determining their correctness points to students and teachers being treated as having different rights and responsibilities concerning knowledge.

As regards learning, the study argues that student-initiated sequences represent a systematic practice for bringing about a change of epistemic status regarding a knowledge object. Locally produced learning manifests itself in the forward-looking orientation to becoming to know something that is needed for a specific action or a task, and then in the skilled accomplishment of that action or task itself. Students also invoke previously established knowledge and epistemic positions in later interactional sequences, even beyond an individual lesson, to construct social action. The study argues that such backward-looking temporal orientations also involve and demonstrate learning, and propose that learning in the classroom is not only limited to knowledge and skills set out by the curriculum but relate intimately to how actions are formed in recipient designed ways.

Keywords: conversation analysis, epistemics, CA-SLA, Content and language integrated learning (CLIL), classroom interaction

Author's address Teppo Jakonen
Centre for Applied Language Studies
P.O. BOX 35
University of Jyväskylä
40014 JYVÄSKYLÄN YLIOPISTO
FINLAND
teppo.jakonen@jyu.fi

Supervisors Professor Tarja Nikula
Centre for Applied Language Studies
University of Jyväskylä

Professor Riikka Alanen
Department of Teacher Education
University of Jyväskylä

Reviewers Associate Professor John Hellermann
Department of Applied Linguistics
Portland State University,
United States of America

Professor Gabriele Kasper
Department of Second Language Studies
University of Hawai'i at Manoa,
United States of America

Opponents Associate Professor John Hellermann

ACKNOWLEDGEMENTS

Finishing something that has kept you busy for many years makes you wonder how you finally got here after all the twists and turns, and where exactly 'here' is. It may sound like a cliché, but writing this dissertation has truly been a journey, one that has been conducted in several countries and, along the way, involved the support of many people, whom I would like to acknowledge here.

First and foremost, I am deeply grateful to my supervisors, Professor Tarja Nikula and Professor Riikka Alanen. Tarja's support has ranged from providing perceptive feedback to an endless number of chapter drafts to enabling access to other aspects of academic work. In short, I have not only been given a chance to write a PhD but have also received an invaluable apprenticeship in academic work in an international environment. Riikka's broad knowledge of research on language learning and her ability to find linkages between different areas of research have also provided much appreciated guidance at critical points in the project, having helped to see where this dissertation stands in relation to previous research.

I have also had the privilege of benefitting from the insightful and constructive criticism of two external reviewers, Professor Gabriele Kasper and Associate Professor John Hellermann, who also kindly agreed to act as the opponent in the public defence of this thesis. Their profound expertise and meticulous comments have both assisted in improving the manuscript considerably and provided important pointers towards future research avenues. Naturally, all remaining errors, inaccuracies and omissions are my sole responsibility.

I have been fortunate enough to have been able to work on this thesis full time, through funding provided first by the Rector of Jyväskylä University and later the Academy of Finland funded project ConCLIL, led by Professor Nikula. As part of ConCLIL, I have also had the opportunity to benefit from a research stay at the Universidad Autónoma de Madrid, hosted by Rachel Whittaker, Ana Llinares, Tom Morton and Rachel Basse. Particularly the collaborative work with Dr. Morton, begun during the visit, helped advance this dissertation considerably. Discussions with Kristiina Skinnari and all other ConCLIL members, in the many locations where our paths have crossed during recent years, have also taken this work forward, as have the postgraduate seminars and coffee break conversations at the Centre of Applied Language Studies. CALS has offered a friendly and flexible, yet supportive, environment for pursuing a PhD for someone spending substantial periods of time outside Jyväskylä.

A large part of my formal researcher training has involved participation in the Finnish Doctoral Programme for language studies (Langnet). The courses offered by Langnet and the supportive meetings of the language learning subgroup led by Anne Pitkänen-Huhta and Matti Lehtihalmes have offered chances to learn about a broad range of research approaches and topics. Langnet has also financially supported my participation in conferences, as have Emil Aaltonen and Otto A. Malm foundations. In learning the specific tricks of the CA trade, the data sessions organised at the Department of Languages by Leila

Kääntä and the practical advice she has conveyed concerning collecting, managing and analysing data have provided invaluable insights. The collection and management of data used in this dissertation has also been quite concretely supported by the Department of Languages, not least through the help of Ari Häkkinen and Saara Leskinen in matters related to video rendering and data transcription.

I would also like to thank the students and the teacher who kindly allowed two researchers to enter their classroom to observe and videotape their daily work. Understanding that work was and still is what motivated this study, and I hope I have done justice to it.

Finally, I would like to thank my family for the gentle encouragement and support over the years. Last but by far not the least, I would like to express my deepest gratitude to my wife Elina, without whom this dissertation would not literally have been made. You gave me the initial push to pursue a PhD and have since been available to listen to and comment on endless observations about social interaction I may have come up with. But most importantly, I am thankful for who you are.

Jyväskylä, October 2014
Teppo Jakonen

FIGURES

Figure 1.	Classroom floor plan with camera angles (names of the students are pseudonyms)	76
Figure 2.	Sequence organisation of student-initiated knowledge gaps	113
Figure 3.	Aulikki's essay summary.....	210
Figure 4.	Part of the course text describing developments under George II.....	212
Figure 5.	Susanna's essay	213
Figure 6.	Course text on Tudor schools	214
Figure 7.	Matti's task answer to question "What caused the plague (suom. rutto)?"	224
Figure 8.	The Plague of 1665 in the course materials.....	227
Figure 9.	Alma's task answer to question "What caused the plague (suom. rutto)?"	229
Figure 10.	Highwayman in the course text	244
Figure 11.	Opening frames of the comic strip: highwayman pointing a gun (from Horrible Histories).....	250
Figure 12.	Esteri's group's task answers	257
Figure 13.	Jouni's group's task answers	261
Figure 14.	Sakari's group's task answers.....	265
Figure 15.	Timeline of interactions (and corresponding data extracts) for constructing the meaning of 'highwayman'	267

CONTENTS

ABSTRACT

ACKNOWLEDGEMENTS

FIGURES

1	INTRODUCTION	11
2	THE EPISTEMICS OF LEARNING IN L2 CLASSROOMS.....	18
2.1	Introduction.....	18
2.2	Knowledge as a social phenomenon.....	19
2.2.1	Knowledge in everyday conversation	19
2.2.2	Orientations to knowledge in (language) classrooms	32
2.3	Language learning in and through social interaction	38
2.3.1	A brief history of interaction for SLA.....	38
2.3.2	CA-SLA.....	40
2.3.3	Learning as local, situated practices.....	42
2.3.4	Learning as changing participation over time	47
2.3.5	Theoretical and methodological challenges in CA-SLA.....	53
2.4	Interaction in content and language integrated (CLIL) classrooms..	59
2.4.1	CLIL as a form of bilingual education	59
2.4.2	Opportunities for learning in CLIL classroom interaction	61
3	DATA AND METHOD	68
3.1	Research questions	68
3.2	Methodology	70
3.3	Research context and procedures for gathering data.....	73
3.4	Constructing the analytical collection	78
3.5	Ethical considerations	81
4	THE MANAGEMENT OF STUDENT-INITIATED KNOWLEDGE GAPS IN BILINGUAL CLASSROOM INTERACTION.....	83
4.1	Introduction.....	83
4.2	Interactional environments of knowledge gaps.....	87
4.2.1	Introduction	87
4.2.2	Whole-class activities.....	87
4.2.3	Gaps in preparation for or during IRE sequences.....	98
4.2.4	Task-based environments	103
4.2.5	Summary	111
4.3	On interactional tasks in the management of knowledge gaps	112
4.4	Recruiting a 'possible knower'	115
4.4.1	Gaze and body orientation	115
4.4.2	Verbal addressing	118
4.4.3	Securing availability and alignment.....	123
4.4.4	Responses by non-selected recipients	130

4.4.5	Addressing knowledge gaps to more than one recipient	134
4.4.6	Summary	137
4.5	Identifying a knowledge gap	139
4.5.1	Introduction	139
4.5.2	Wh-interrogatives	140
4.5.3	Polar interrogative structures.....	150
4.5.4	Declarative syntax.....	162
4.5.5	Indicating lack of knowledge through sequential and embodied resources	168
4.5.6	Summary	180
4.6	Production of an answer and negotiation of its validity	181
4.6.1	Introduction	181
4.6.2	Accepting K+ positioned responses	181
4.6.3	Practices around K- responses	185
4.6.4	Contesting knowing answers	192
4.6.5	Negotiating the terms of a knowledge gap	198
4.6.6	Summary	203
5	KNOWLEDGE GAPS AND LEARNING.....	205
5.1	Introduction.....	205
5.2	Learning as the local production of knowledge for task purposes .	207
5.3	Learning as orientation to previously held epistemic positions.....	220
5.4	Drawing on out-of-school experiences.....	239
5.5	Case study: finding 'highwayman'	243
5.5.1	'Highwayman' in the task and the course text	244
5.5.2	Emergence of highwayman in group talk.....	245
5.5.3	Mediating between classroom floors: highwayman in whole-class talk	251
5.5.4	Interactional explanations as resources for subsequent task work	257
5.5.5	Summary: knowledge construction within and across student groups.....	265
5.6	Summary	268
6	CONCLUSION: CONSTRUCTING AND LEARNING CONTENT AND LANGUAGE IN CLIL CLASSROOMS.....	270
6.1	Knowing and learning in peer interaction	271
6.2	A participants' perspective to content and language in CLIL teaching	274
	YHTEENVETO.....	279
	REFERENCES.....	284
	APPENDIX 1: TRANSCRIPTION SYMBOLS	303
	APPENDIX 2: FORM FOR OBTAINING INFORMED CONSENT	304

1 INTRODUCTION

Neither knowledge nor learning begins its life in dark places. They begin in full and public view, available from any chair in the room. That - and then how - they do has largely been lost on the literature. (Macbeth 2011, 447)

This study investigates the interactional work conducted by students as they autonomously discover, define and work on emergent problems during lessons in a bilingual classroom. The treatment of such 'problems' is intimately tied with knowledge and learning, two concepts which are typically seen as individual cognitive operations. However, as Macbeth (2011, p. 447) points out in the above quotation, both knowledge and learning are also public affairs which are enacted in observable interactional practices. To give a canonical example from the classroom, knowledge asymmetries are implicated when teachers ask questions to which they already know the answer (see e.g. Mehan, 1979a). The social nature of the two concepts is also apparent when teachers invite their students to display or demonstrate whether or not they know some curricular facts or task procedures, and then use these displays to co-construct knowledge or skills (see e.g. Koole, 2010, 2012; Mchoul, 1978; Sert, 2013). In brief, these observations suggest that knowing is very much something that we also 'do' in social interaction, and that teachers have systematised practices to gauge their students' knowledge states in order to facilitate learning in the classroom.

The role of interaction for learning is a long-established topic of study in a variety of disciplines and research frameworks, not only in the domain of second/foreign language but also in educational research that focuses on the learning of academic content in first language classrooms. Traditionally, many such research projects treat interaction as a means to achieve rather than a natural site of learning. For example in research on second language acquisition (SLA), an association with interaction and language learning was put forward already in late 1970s in connection with observations that native speakers modify and simplify their talk when conversing with non-native speakers (see Ferguson, 1975). Long's (1981, 1983a) subsequent proposition that such modifications and the micro-level interactional processes they entail may benefit SLA inspired a plethora of studies investigating the nature of what became termed as negotia-

tion of meaning. This kind of negotiation between native (NS) and non-native speakers (NNS) of a particular language takes place when they attempt to avoid and repair interactional trouble, for example by requesting clarification, checking the NNS's understanding, or by speaking slower. Another well-established line of inquiry focusing on interaction within traditional SLA research has attempted to identify teachers' practices for dealing with learner errors in whole-class talk in bilingual classrooms, as well as examine their relative effectiveness through experimental research designs (Lyster & Mori, 2006; Lyster & Ranta, 1997; Sheen, 2004). A central concern for research on corrective feedback has been to apply these findings in L2 pedagogy by means of invoking suggestions for dealing with either the overt teaching of language form or the management of language errors in classroom interaction (see e.g. Ellis, 2001; Long, 1991; Lyster, 2007).

A similar quest for identifying forms of talk that may contribute towards achieving teaching objectives can be observed in the general educational literature. Besides examining teacher-led instances of knowledge construction, one influential line of inquiry has investigated students' collaboration as they go about resolving learning tasks in the classroom. A central concern to the researchers has been the identification of interactional strategies that appear to have a connection with effective task accomplishment (see e.g. Barnes, 1979; Barnes & Todd, 1995). It is in this context that the notion of exploratory talk as 'groping towards meaning' was first put forward in Barnes' (1979) highly perceptive description of talk in secondary classrooms, which later inspired a research enterprise aiming at fostering such discursive strategies of 'thinking together' through teaching interventions (see e.g. Mercer & Littleton, 2007; Mercer, 2000). In educational studies, measures of effectiveness or quality of peer talk are typically grounded in the researcher's understanding of the educational merit of certain forms of talk, or a (statistical) link between those forms and results from post-tests that measure content knowledge or reasoning skills. In this regard, many such studies treat talk as instrumental, as a means to support the learning of objects that have been predefined by the researcher or the curriculum - even if Barnes (1979, pp. 14-15) appeared to consider the relationship of talk and educational outcomes as a more complex one. Thus, similar to SLA studies of error correction, educational studies also appear to treat interactional practices as variables which can unproblematically be tweaked in experimental conditions.

With regard to forms of education that combine the teaching of a foreign language and academic subject matter, such as content and language integrated instruction (CLIL), the relationship between interaction and learning is likely to be even more complex than in the formal foreign language classroom. Although CLIL is an 'umbrella term' for a wide array of instructional programmes that combine these two teaching goals in diverse ways, the bulk of competences which such programmes aim at providing cannot reasonably be expected to be obtained through correcting linguistic 'errors'. Instead, these competences may also involve various subject-specific goals and ways of conveying and reporting

knowledge. Previous research on CLIL has indeed highlighted how learning objects that relate to aspects of academic content in these programmes, not only those that are about linguistic meaning and form, have a central role for learner success. These differences in what participants treat as learning objects may even give rise to different kinds of instructional practices between CLIL and formal foreign language teaching (see Nikula, 2007a).

Despite the broad range of research on classroom interaction in a variety of instructional settings, previous studies have paid considerably little attention to ways in which students take initiative in organising their learning activities in the language classroom (but see e.g. Waring, 2011). The prevalent image of classroom interaction in the light of research is one of teacher-led instruction in which students participate by responding. What is more, previous research has tended to focus on talk, its errors and content, and thereby overlooked all other embodied conduct that conveys meaning in interaction. Consequently, while plenty of literature exists on how teachers weave student participation into coherent instructional activities through questioning and providing (corrective) feedback in response to students' answers in whole-class talk, much less is known of student participation alongside and beyond such sequences, let alone how students initiate activities to support their learning and, in the course of doing so, find and define their own learning objects. This suggests that there are likely to be aspects of classroom life which have significance for learning in the classroom, but which are yet to be explored from the participants' perspective. Some of such interaction is, however, contrary to Macbeth's (2011, p. 447) description above, not 'available from *any* chair in the room' [emphasis added]. Instead, a significant part of students' social life in the classroom involves participation in conversations in which the teacher is not addressed at all. This is the case, for example, in situations in which students engage in what might be termed as 'desk talk' (Sahlström, 1999, pp. 87–92), addressing those in their immediate vicinity as opposed to making their talk available to *all* classroom members.

When considering what kinds of interactional activities may be relevant to and significant for learning, be that in the domain of language or something else, seeking advice and assistance are likely to make it very near the top of the list (as testified by a recent special section on the topic in *Learning and Instruction*, 21 [2]). The possibility to begin action sequences to address a 'need' provides students with resources for managing and negotiating learning objects that emerge during task work, and which may thereby be quite different from those that are predetermined by the curriculum or the teacher. Such 'bottom-up' activities for enlisting the help of those that we take as more knowledgeable in situations when we do not know something are not only employed to accomplish tasks in the classroom but also in many other types of institutions and organisations, as well as in everyday social life. The existence of formalized procedures and institutions devoted to catering to the needs of help-seekers, such as a call helplines, Q&A sessions after presentations and tourist information desks, to name but a

few, testifies how a ubiquitous aspect of human sociality such an activity represents even beyond face-to-face interaction.

To respond to this research gap related to the role of learner initiatives for learning in the language classroom, the purpose of this study is to explore student-initiated interactional practices for seeking and receiving assistance in bilingual (CLIL) classroom instruction. By doing so, the study aims to advance research-based understanding of the social aspects of knowledge construction and (language) learning in these classroom contexts by shedding light on students' ways of supporting the accomplishment of classroom activities. Motivated by the purpose stated above, this study seeks to answer the following overarching research question:

How do students identify knowledge objects that they need assistance with and work on them in the course of accomplishing learning activities in CLIL classroom, and, what do these objects and their treatment imply for the conceptualisation of language, content and learning in CLIL instruction?

Besides contributing to research on the social organisation(s) of classroom-based education, the overarching research question relates this study to a broader theoretical discussion, in particular in recent CLIL research, on how language and content figure in and are brought together in the praxis of bilingual classrooms. What this study aims to contribute to the latter discussion is an empirical, microanalytical investigation of the kinds of aspects of instruction students may find problematic in bilingual classroom activities, and a description of practices for addressing those problems. The overarching question is pursued through the following three empirical questions (see also chapter 3):

- 1) How and in what kinds of activity contexts do students indicate lack of knowledge regarding some aspect of the on-going instruction or the task in first pair part (FPP) positioned turns?
- 2) How are these indications of lack of knowledge treated in subsequent interaction?
 - i. What is the interactional organisation of sequences initiated by these indications like?
 - ii. What kinds of interactional tasks does participation in these sequences involve?
- 3) What kinds of opportunities for learning do these sequences offer?

These research questions are addressed in the methodological framework offered by ethnomethodological conversation analysis, or CA, (for an introduction, see e.g. Hutchby & Wooffitt, 2008; Psathas, 1995; ten Have, 2007) that is sensitive to the multimodal nature of social action. CA, which has emerged as a research method in applied linguistics, sociology and a number of other disciplines, is also a research field in its own right. It represents a data-

driven, predominantly qualitative and microanalytical approach to the analysis of naturally-occurring (i.e. non-experimental) human interaction. It has proved particularly suitable to the study of social action, its underlying structures, orderliness and practical methods of reasoning that social actors draw on to produce and understand action, as evidenced in their observable orientations. A key analytical insight which previous CA studies have demonstrated relates to the adjacent nature of interactional 'meaning': unless marked otherwise, speakers examine the import of individual turns in reference to the (sequential) location in which they are produced, thus responding to some previous action and inviting some further action (see e.g. Schegloff, 2007, pp. 13-15). This pervasive feature provides them (and the analyst) with a 'proof procedure' (Hutchby & Wooffitt, 2008, pp. 13-15; see Sacks, Schegloff & Jefferson, 1974, pp. 728-729) for maintaining shared understanding of what they are currently doing by offering a basis for displaying, monitoring and correcting understandings of the actions conducted through the just-prior turn. A consequence of such participant sensitivity to sequential location of a turn also means that an action such as an 'indication of lack of knowledge' (research questions 1&2) is very likely to be taken to 'mean' quite different things when it is done at a position in which it begins some sequence of talk as opposed to when it is heard to respond to some previous action (such as a teacher's question in the classroom, see Sert, 2011). It is this difference between *initiating* and *responsive* actions that the use of the CA term 'first pair part' (as opposed to 'second pair part') in the research questions attempts to convey and thereby relate the questions to the aforementioned research gap around learner initiatives.

The methodological approach taken in this study may be characterised as 'applied' rather than 'basic' CA in at least two different ways, as described by Antaki (2011). Firstly, in this study CA is used as an analytical lens in an attempt to re-specify a concern (i.e. 'knowing' and 'learning') of another discipline - in this case applied linguistics and general educational research - and examine it from a social, participant-relevant perspective. Seen this way, 'knowing' and 'learning' - which have a long-standing history as above all intramental concepts - become analysable as practical, social and sequentially grounded actions and activities conducted by classroom participants. By adopting a CA perspective, considerations such as educational quality or effectiveness may be examined against benchmarks set by the participants themselves. Secondly, this study may be seen as applied CA as it focuses on how talk and embodied conduct are used to doing the routine work of a particular institution, the classroom.

The data used in this study are 15 consecutive, video-recorded and transcribed history lessons taught in English over two months to a class of 14-15-year-old, native Finnish-speaking students at a secondary school. Besides recorded lessons, the data includes the pedagogic texts used and the tasks completed by students in the classroom during the recorded lessons.

Theoretically, this study draws on and is offered as a contribution to three distinctive research areas: CA work on social epistemics, CA-SLA and research

on classroom interaction in CLIL education. Previous conversation analytic work on epistemics has shown that issues such as who knows what, how well they know it (in relation to other speakers), as well as what rights and responsibilities individual speakers may have towards certain types of knowledge are concerns that speakers routinely manage in a range of conversational activities. Moreover, such a social organisation of knowledge appears to play a role in how the interactional meaning of individual actions is formed, recognised and ascribed (Heritage, 2012a, 2012b), as well as how social actors index cooperative relations and identities by affiliating and aligning (or not) with others' emotions and actions (see Stivers, Mondada & Steensig, 2011a; also Stivers, 2008). From around the turn of the millennium, CA methodology has also begun to be used in investigations of connections between language learning and social interaction, in a body of literature that is nowadays often identified as CA-for-SLA (see the special issues in the *Modern Language Journal* in 2004 [88/4] and 2007 [91/3]) or more recently simply as CA-SLA (Kasper & Wagner, 2011; Pekarek Doehler, 2010). CA-SLA, which has originated from a critique of mainstream psycholinguistic/cognitivist SLA research (see Firth & Wagner, 1997), has seen a proliferation of studies exploring the kinds of interactional practices that might work as affordances for learning in a variety of formal and informal learning contexts. Another focal area in prior CA-SLA research has been the investigation of the ways in which learning itself may be seen as a social phenomenon. Lastly, prior studies investigating classroom interaction in instructional settings that combine the teaching of subject-matter content and of foreign/second language (CLIL) have brought to the surface the diverse nature of learning objects that teachers and students work on, not only those related to 'language' but also those related to various subject-specific ways of representing knowledge.

The rest of this study, which in its entirety extends to six chapters, is organised as follows. In chapter 2, the aforementioned theoretical framework of the study will be described in more detail, laying the foundation for the empirical part of the study. In doing so, an argument will be put forward for the need to consider learning in classrooms where subject content is taught as something that is in many ways related to knowledge objects and distinctive epistemic practices (cf. Knorr Cetina, 2001, pp. 184–185) which the management of those objects constructs. Such a focus on knowledge objects may be one central factor that frames language learning in CLIL classrooms and distinguishes it from many other habitual and informal settings as well as some other classrooms where the students study in a second language. Following this, chapter 3 will present the research task and empirical questions in detail, also describing the data and the methodology with which they will be addressed. Besides reporting the context of and procedures for obtaining the data, the chapter will describe the steps taken in the analytical process, such as how the collection of interactional sequences which the subsequent analytical chapters draw on was created. Finally, the chapter will briefly consider ethical issues involved with the study.

The empirical core of this study is presented in two analytical chapters, 4 and 5, which will address the research questions outlined above and in chapter 3. Chapter 4 focuses on research questions (1) and (2), investigating interactional sequences which begin when a student indicates lack of knowledge related to classroom activity or task. It will examine the methods for conveying lack of knowledge, their interactional environments of occurrence, the organisation of sequences they initiate, and the kinds of interactional tasks that these sequences involve. Following this, chapter 5 will address research question (3), considering if and how the interactional treatment of lack of knowledge in the focal sequences relates to learning. The analysis presented in the chapter will not only draw on recorded lessons but also on the collected texts and tasks used and completed during those lessons in order to tease out what kinds of functions these sequences may have for task-accomplishment as well as investigate ways in which students index learning in the course of classroom activities. Finally, chapter 6 will conclude the study by drawing the empirical findings together and summarising their main contributions to the literature. The chapter will also revisit the overarching research question outlined above (and discussed in more detail in chapter 3) related to what student-identified knowledge objects and the management of lack of knowledge imply for understanding 'language' and 'content' as well as their integration in CLIL teaching.

2 THE EPISTEMICS OF LEARNING IN L2 CLASSROOMS

2.1 Introduction

In the course of conducting conversations, speakers quite frequently and observably attend to their own and their co-conversants' knowledge states, as well as negotiate their relative weight in order to accomplish whatever interactional business they have at hand. To give an everyday example, by requesting information from someone a speaker proposes that she is unaware of that information, and conversely that the addressed recipient may be a potential and even a likely 'knower'. Recent conversation analytic (CA) research suggests that such practical understandings of who knows what appear to have fundamental consequences for how interactional turns become understood as doing a specific action, in other words how action is ascribed to a turn (Heritage, 2012a, 2012b; Levinson, 2012). More generally, CA work in epistemics is concerned with the ways in which knowledge is managed in interaction, and how it thereby represents an interpersonal, socially constituted phenomenon that potentially contributes to general organisations of interaction. The pervasiveness of such a social organisation of knowledge is not limited to everyday interaction but is an equally, if not more, significant part of the institutional context of content-focused classrooms. Not only do classrooms represent interactional sites in which one member, the teacher, is generally oriented to as having superior epistemic status regarding lesson contents, but they are also places where the fundamental institutional goal of producing learning (see e.g. Seedhouse, 2004, p. 183) is often inextricably bound with knowing. Therefore, it is not surprising to see that various interactional displays of 'knowing' and 'not knowing' are a regular part of lessons in many kinds of classrooms, often done for the purpose of learning and its assessment.

For some reason previous CA-oriented research has tended to address (language) learning and knowledge as part of separate lines of inquiry, the former body of work often being referred to as CA-SLA and the latter, more recent,

literature focusing on the management of epistemics in the practical classroom work between teachers and students (e.g. Koole, 2010, 2012; Sert, 2011, 2013). However, and as was suggested above, this chapter argues that these two concerns are useful and even necessary to bring together in order better to understand the pervasive role of knowledge for learning in classroom contexts where academic subject matter is also at issue. Furthermore, what has emerged from prior research on the interactional organisation of lessons highlights classrooms as complex physical locations that afford a range of speech-exchange systems, not only dyadic talk between a teacher and an individual student, but also talk and activities that may be on-going between peers simultaneously to teacher-led talk. These different ‘floors’ (Jones & Thornborrow, 2004) of classroom talk involve systematically differing orientations to co-conversants’ epistemic rights and responsibilities, as will be argued in this chapter and demonstrated later in the analytical chapter 4.

Finally, this chapter will introduce in more detail content and language integrated learning (CLIL), an umbrella term used for a variety of approaches that combine the teaching of subject-matter content and a foreign/second language. Although relatively little conversation analytic work has focused on these classrooms, CLIL classroom discourse and interaction has been investigated from other theoretical and methodological perspectives, of which the most relevant for understanding CLIL classroom epistemics will be reviewed in this chapter. What this research has perhaps most clearly illustrated is how participants in content-focused classrooms are concerned with a diverse range of learning objects, not only those that relate to ‘language’ but also various linguistic practices that construct subject-specific ways of representing knowledge.

2.2 Knowledge as a social phenomenon

2.2.1 Knowledge in everyday conversation

As John Heritage (2012b, p. 31) points out, many theories of communication across different scientific fields regard information as a key motivator of communication. Recent conversation analytic research, in particular that by Heritage (Heritage & Raymond, 2005; Heritage, 2010, 2011, 2012a, 2012b, 2012c, 2013), has explored and conceptualised the role of knowledge for the organisation of interaction and how speakers may orient to certain information or states of affairs as ‘known’ to one or the other party. Thus, a key theme that runs through CA work on epistemics, and one that distinguishes it from many linguistic approaches to knowledge, such as typologically oriented research on evidentiality (for an overview, see e.g. Aikhenvald & Dixon, 2003; Mushin, 2013) is that knowledge in social interaction is seen as a normative, accountable matter, in other words, a ‘moral domain’ (Stivers, Mondada & Steensig, 2011b) which has consequences for the maintenance of social relations. Although social epistemics may seem like a hot research topic at the moment, as Schegloff (2010) notes,

conversation analytic studies have for a long time addressed similar cognitive concerns from a participant-oriented and interactional perspective, even if such research foci have not been referred to with the concept of epistemics. One early and prominent line of inquiry is constituted by investigations of how contributions to interaction are formulated so as to make claims or assumptions regarding what knowledge may be shared between the interactants (so called “recipient design”, see e.g. Sacks et al., 1974, p. 727; Sacks & Schegloff, 1979). Moreover, Heritage’s own early work (1984a) probed the ways in which speakers convey to their co-conversants that they have undergone a change of a local knowledge state by using the particle ‘oh’, for example when responding to turns that are designed to tell new information. Influential early CA research in epistemics also includes the work by Anita Pomerantz (1980), who investigated how speakers orient differently to knowledge items, or ‘knowables’, that derive from first-hand experience as opposed to those that are known through e.g. hearsay or inference. In her later publications, Pomerantz linked management of knowledge with how speakers conduct agreement or disagreement when they assess some referent (1984a) as well as showed how delayed responses may be treated as having implied epistemic problems, the nature of which speakers can ‘diagnose’ in their pursuits of the response (1984b).

CA work has also probed the ways in which participants treat knowledge as a normative and accountable domain. In the ethnomethodological tradition from which CA has emerged, the notion of a norm does not so much refer to an explanatory variable or distribution of conduct (although it may be evidence of the existence of a norm), but rather relates to an expectation which provides a point of reference for the construction and interpretation of social behaviour, including behaviour that departs from that point (see Heritage, 1984b, pp. 115–129; also Levinson, 2006, p. 45). Prior research in CA and pragmatics suggests there are indeed several social norms regarding speakers’ access to knowledge as well as their rights and responsibilities to know towards which they routinely orient in everyday conversation. These research findings are drawn together and synthesized by Stivers et al. (2011b, pp. 9–13), who point out that speakers should not only avoid informing already knowing recipients what they know, but that they should also avoid making claims concerning knowledge to which they do not have access. As a consequence of these related maxims, Stivers et al. argue that interactants engage in monitoring their interlocutors’ epistemic access, so that they devise their turns with remarkable accuracy in terms of the presupposed access. There are also some interactional practices such as pre-sequences to announcing new information which can be seen as work towards securing the accuracy of presumed epistemic access.

However, speakers do not necessarily treat each other’s access to knowledge as only an either-or phenomenon, but they often also orient to asymmetries in the *degree* of each other’s knowledgeableability and their right to know some information. Stivers et al. (2011b, pp. 13–16) draw on prior observations by Harvey Sacks (1992a, pp. 557–566) on legitimate audiences of information, as they suggest that oriented-to norms include that particularly infor-

mation that is 'big news' should be announced in order of relational (familial) closeness to the person who is concerned and that speakers should only make assertions or assessments with sufficient rights to the information conveyed, to the extent that those with more authority have greater rights to make assertions. On some occasions, these asymmetrical rights to knowledge result from a certain social identity category, such as a teacher, but they are also regularly intertwined with local interactional roles and the implications of sequential positioning of a turn. This is the case, for example, when speakers offer a 'second' assessment of some referent and they are thereby heard to either agree or disagree with the first speaker instead of providing an independent opinion (e.g. Heritage & Raymond, 2005). Relatedly, speakers appear to have responsibilities for retrieving certain kinds of knowledge, to the degree that they may be held accountable for doing so. Stivers et al. (2011b, pp. 17-19) suggest that such responsibilities not only relate to the nature of the knowledge object, so that one is responsible to know one's personal information, but also to locally assumed interactional roles, so that for example question recipients are treated as responsible for providing a knowledgeable answer. This may be seen in the routine provision of a claim of insufficient knowledge as an account for not providing an answer, a response type which treats a knowledgeable answer as a normatively accountable matter.

Stivers et al. (2011b, pp. 20-22) maintain that at a fundamental level, the way these normatively assigned rights and obligations towards knowledge are adhered to, violated, or enforced carries implications for the maintenance of social relations and solidarity. When we engage in action sequences, our contributions are investigated by our co-conversant(s) in terms of how we align ourselves with the activities they propose and the affective stances they display. To continue with the example of question-answer sequences, by asking a question a speaker treats the recipient as potentially knowledgeable enough to provide an answer. Thus, in such a context, whether a knowledgeable answer or a claim of insufficient knowledge is provided, as well as the manner in which either response is done, indexes the second speaker's alignment with the project undertaken by the first speaker and carries implications concerning which of the interactants is treated as responsible for the lack of an answer (see Keevallik, 2011). It is in this way that our epistemic relations, constructed through micro-level interactional practices, have bearing on issues of social solidarity.

In the words of Heritage (2012c, p. 370), CA research on epistemics focuses on the knowledge claims that interactants assert, contest and defend in and through turns-at-talk and sequences of interaction. As often is the case with definitions, equally important to a consideration of what they include is to consider what they exclude. Thus, it is the exclusion of a link between 'claims' and any underlying or simultaneously occurring mental states - i.e. the notion of 'talk as a window' into individual minds (cf. Edwards, 1993) - that separates CA from many other approaches to knowledge such as cognitive science, cognitive psychology and research approaches in linguistics that are concerned with modelling how linguistic knowledge is represented in the brain. Instead of establish-

ing such a link, CA work on epistemics examines the ways in which the management of such knowledge claims or cognitive mental states is an observable part of social life. Thus, recurrent themes in early CA work that focused on knowledge were how it is treated as being differentially distributed across social actors (i.e. epistemic access) as well as what sort of knowledge speakers seem to treat systematically as belonging to them (epistemic asymmetries). As we will see later, asymmetries of epistemic access are also a highly salient aspect of teacher-student interaction in classroom settings.

After this short introduction to conversation analytic treatment of epistemics, the next section will first review early CA work on knowledge, beginning with the domain of recipient design, before turning into contemporary accounts and theorisation of epistemics. It will be argued that knowledge is present across a broad range of social practices of everyday life. The attention will then shift to the management of knowledge in the institutional context of this study, (L2) classrooms. Revisiting earlier research on frequently observed interactional practices in the classroom as well as describing more recent work on classroom epistemics, the attempt will be to show that content-focused classrooms are interactional sites in which knowledge is a key practical concern.

Recipient design

The notion of recipient design refers to the many ways in which speakers construct, contextualise and individualise their talk so as to make it recognisable and understandable to the particular hearer (see Sacks et al., 1974, p. 727). The idea of recipient design as a notion that relates to speakers' practical understandings of each other's knowledge states is present already in Harvey Sacks' lectures¹, such as those in which he proposed that there is a conversational maxim to 'design your talk to another with an orientation to what you know they know' (1992b, p. 564). The way these practical understandings are enacted through interactional contributions is summarised in a fictitious example provided by Levinson (2006, p. 87), who notes that by referring to somebody as 'Tony', a speaker judges that his recipient (i) not only knows the person as 'Tony' but (ii) also knows that the speaker knows him under such name, and knows that (iii) the speaker knows both aforementioned things. A large part of the early CA work on recipient design indeed focused on how speakers' references to persons (e.g. Sacks & Schegloff, 1979; Schegloff, 1979) and places (Schegloff, 1972) index certain understandings regarding the recognition of the referred-to person, although it was early on recognised that talk can be addressed to a particular recipient through a broad range of lexical and sequential

¹ Sacks' lectures to students of sociology at University of California between 1964 and 1972 have later proved out to be a major source of inspiration for a large number of conversation analytic studies. In his work, Sacks drew on a broad variety of data, not only recorded interaction as has become the norm in CA, but also observations on social events, newspaper clips, remembered stories and tellings, etc. The lectures themselves were originally audiotaped, transcribed, and later made available to the general public in edited form in 1992.

methods (see Sacks et al., 1974, p. 727), and as the more recent research suggests, such methods may include gesture (Koschmann & LeBaron, 2002, pp. 253–257),

A number of Sacks' lectures investigate recipient design in relation to how speakers refer to, identify and categorise other people, and what sorts of understandings of social life these practices display. A key observation behind the notion of recipient design is that at any occasion of reference to some third party, multiple identifications are possible, relevant and factually correct, yet some forms appear to be used more often than others; and the use of some other forms may even be seen to be doing some distinct social actions, such as name-dropping (Schegloff, 1972). In one lecture, Sacks (1992b, pp. 445–452), makes observations on how speakers, while identifying third parties during talk, repair their talk by replacing one type of reference item with another. In such a context, Sacks argues that a distinction can be made between those reference forms which treat the referred-to person as someone whom the recipient should be able to recognise, such as 'Jack' (Type 1), and those which the recipient is not expected to know, for instance 'one guy' (Type 2). As formulated by Sacks, the latter type proposes to the recipient that 'the person who I'm referring to is someone whom I identify in such a way as to indicate that I have no reason to think that you know him' (1992b, p. 452). In constructing an argument for a preference for a Type 1 over Type 2 identity, he discusses some routine ways in which the participants engage and aid each other in a 'search' that pursues a shift from the use of Type 2 to Type 1 identity. These practices may involve the provision of further information on the referred-to person's family relations and address in order to establish recognition. Sacks and Schegloff (1979, pp. 16–17) have later noted that the preference for the use of 'recognitional forms' of person reference (i.e. Type 1) operates whenever 'possible', that is when the 'recipient may be supposed by speaker to know the one being referred to, and if recipient may suppose speaker to have so supposed'. Evidence for the preference related to such practical understandings of who knows what is according to Sacks and Schegloff (1979), not only distributional (i.e. recognitionals are heavily used) but also that recognitionals are also introduced in interaction for later use even when not known to the recipient. Elsewhere, Schegloff (1979, p. 50) has noted how such a preference involves a bias for 'oversuppose and undertell' information.

Regarding the way recipient design operates on the domain of place reference, Schegloff (1972) describes two types of analyses, location and membership, that speakers conduct so that the place they refer to may be recognized and understood by the recipient. Thus, any formulation of a place displays to the recipient a specific understanding of the speaker's and the recipient's location (as well as that of the referent whose location is being formulated in case it is none of the interactants). Schegloff proposes that such location analyses rely on 'common sense geography', which members of a culture share and presume each other to have, so that for example when North Americans report their travels, they tend to go to 'Europe' rather than 'France', the latter of which they may find themselves needing to provide an account for (1972, pp. 83–87). Secondly, formulations of a place also concern and display an analysis of the cate-

gories of which the recipient is identified as a member. Schegloff discusses how this can be seen in cases where recipients whom directions to a place are being requested may sometimes not only claim insufficient knowledge of the place, but they might also correct the member category that they see the request being based on. Such an analysis of a wrongly assumed member category is made visible for example in responding accounts that take the form 'I'm a stranger here myself' or 'I don't work here' (1972, pp. 88-96). These kinds of social situations where the social identity - who exactly do we take the other party to be - is being challenged illustrate how the presuppositions that are enacted through turns-at-talk are always open to subsequent re-negotiation by the parties to talk. In other words, interaction provides a locus and a means for a continuous updating of recipient design.

Besides formulations of person reference, other Sacks' work that relates to the notion of recipient design includes his discussions of the conversational maxim according to which speakers should not tell their recipients what they already know, the previously mentioned social norm that also features in pragmatic and philosophical theories of human communication (e.g. Grice, 1975). In one of Sacks' lectures (1992b, pp. 437-443), he probed how the norm is oriented to in what he termed as 'spouse talk', that is talk that takes place when two or more couples are gathered together. Sacks pointed out that as people tend to inform their intimates about news at the earliest possible occasion (i.e. in order of relational closeness), spouse talk regularly involves people with varying knowledge states concerning conversation topics. In the context of telling a story or some sort of an announcement, the teller's spouse is frequently and expectedly aware of what is being presented as news to the other couple. Some of the cultural solutions that Sacks sees as being employed to resolve this conundrum related to epistemic asymmetries include the splitting apart of couples into separate parties for men and women, or the non-telling spouse occupying themselves with other activities, such as offering drinks or joining in the story telling by finishing the teller's sentences or otherwise monitoring and modifying the correctness of the story as it is being told (pp. 442-443).

These observations on speakers' orientation to differential knowledge distribution and the normativity around information sharing in the context of spouse talk were also developed further by Charles Goodwin (1979). His detailed analysis investigated how a speaker modifies a single announcement in the course of its production to maintain its appropriateness, or news-worthiness, to recipients whose knowledge states the speaker can reasonably presume to differ. More specifically, Goodwin shows how the speaker's additions to his announcement ("I gave up smoking cigarettes one week ago today actually"), which he constructs as he shifts his gaze between three hearers, are tailored to what he can expect each hearer to know about the topic of the announcement. Thus, when shifting his gaze from a family friend whom he has not seen in a while to his wife, the speaker adds the unit 'one week ago', which transforms the news from an announcement of having quit smoking into one that discovers its anniversary and expects similar recognition from the recipient. Such a new

item, Goodwin (1979, p. 100) argues, is something not even close family need to be expected to know. As the speaker once more shifts his gaze, this time from his wife to a second family friend, he adds the word 'actually' into his turn, and yet again transforms the turn from a discovery of an anniversary into a report about it (1979, p. 111). All in all, these observations suggest that the management of knowledge is something that speakers and hearers may on the one hand quite skilfully 'do' in the course of conducting other activities, and on the other hand, the way interactants may orient to norms around knowledge may be indexed in very intricate ways.

From an ethnomethodological/CA viewpoint, recipient design is part of members' methods for making social life understandable and recognisable, in the sense that the ability to construct turns so that they take their recipient into account is what is expected from a competent member of a society. Although few CA studies address how members come to learn such methods which we may not necessarily notice when conducting our business, it may be that specialised professional communities are one context where such abilities, or the lack thereof, can more visibly be observed. For example in institutional settings such as medical encounters, the ability to design talk that is sensitive to a particular recipient, be that a layperson or another professional, may be seen as a crucial part of what constitutes professional interactional competence. This was made evident by Nguyen's (2011) recent investigation of the longitudinal development in how a pharmacy intern explains body-internal processes to his patients. Nguyen argued that over time the intern learnt to more sensitively modify the level of field-specific technical details in his explanations to cater to the local expectations of patients, which in turn made his talk 'increasingly recipient designed' and the accomplishment of the institutional task of conveying information to patients more effective (pp. 197-198). Nguyen's study thus sheds light on the interactional nature of professional competences, as well as what kinds of developmental processes the domain of recipient design may involve.

Knowledge and sequence organisation

Part of early CA work has also explored relations between knowledge and the sequence organisation of interaction by examining how interactants manage knowledge in the context of specific, sequentially well documented practices. For example, Pomerantz (1984b) investigated the ways in which speakers may pursue a response to their first pair-part action following a delay in the production of an appropriate response. She identified three different types of problems - an unclear or unknown referent, wrong assumption of what constitutes common knowledge, and disagreement - to which pursuits routinely orient as having been the reason behind the lack of response. Moreover, she argued that the problems and their corresponding remedies were ranked so that speakers try easier solutions first, for example by clarifying a possibly unknown word before proceeding to check assumptions concerning shared knowledge, and ultimately, treating the lack of response as projecting disagreement. What is interesting

from the point of view of the social organisation of knowledge is how the first two remedies for a lack of response display an orientation to an asymmetric distribution of knowledge between the interactants as the problem that prevents the routine accomplishment of the sequence. In other words, the study suggests that shared knowledge is one of the first if not the very first thing people appear to check when action sequences do not proceed as they should. Thus, problems around knowledge are factors that are readily oriented to as accounting for the lack of alignment with the activity begun by the first speaker.

In another publication, Pomerantz (1984a) suggested that knowledge management has implications for how agreement and disagreement are carried out in assessment sequences: that is, sequences in which speakers evaluate the quality of some referent or state of affairs, such as the weather, other people, and the like. A recurrent feature of such sequences is that they tend to involve paired assessments, i.e. when someone makes a first assessment, often their co-conversant proffers a second assessment in which they position themselves in some way in relation to the first assessment. According to Pomerantz, assessments are deeply linked with knowledge, so that by assessing a referent, a speaker claims knowledge of it, and conversely, insufficient knowledge of a particular referent may be offered as a warrant for not providing any assessment when one is expected to do so (pp. 57-58).

Some twenty years later, Heritage and Raymond (2005) picked up on this work and systematically investigated the epistemics of assessment sequences. They argued that the sequential positioning of an assessment carries an implication of the relative epistemic authority over the assessed matter so that by 'going first', a speaker is laying claim to having primary rights to evaluate the matter. Conversely, the second position constrains an assessment as being related and responsive to the first, with which the second will thus be heard to either agree or disagree. However, speakers are not necessarily confined to the epistemic implications of these sequential positions, for they have subtle ways to manage the inherent implications by either upgrading or downgrading their claimed knowledge of the assessed referent in both positions. Looking at English-language conversations, Heritage and Raymond (pp. 22-30) identified four different linguistic formats which can be used in second position to upgrade claimed epistemic access. Second speakers can upgrade their claims by using resources that treat confirmation rather than agreement as the main business of the turn, such as when they either partially or completely repeat the assessment and follow it with an agreement token ('It's very cheap, yes'). They can also preface their turns with the change-of-state token 'oh' (Heritage, 1984a) to convey that their opinion is independent of the first assessment, which has simply invoked a prior experience (such as in responses formatted 'Oh yes' as opposed to simply 'Yes'). Thirdly and fourthly, second speakers can also use tag questions ('James is a little bugger isn't he') or negative interrogative syntax ('Isn't she a doll'), both of which reverse the sequential implicativeness of the activity and call for a new production of agreement from the first speaker.

Heritage and Raymond (2005) used these observations, together with distributional data indicating that first assessments rarely appear upgraded but quite commonly downgraded, quite unlike second assessments, to conclude that there is a 'fundamental association between the positioning of an assessment and the epistemic claims implied by that positioning' (p. 34). Moreover, the authors saw the aforementioned practices as ways in which speakers can control their and their co-conversants' rights to evaluate matters as well as access to specific informational domains. What seemed to be at stake in this kind of knowledge management in assessment sequences was the establishment of the terms of agreement: in other words, 'who agrees with whom' (p. 36).

Stratification of knowledge across speakers

Part of the early CA work also probed systematic patterns in knowledge asymmetries and the way specific types of knowledge may become treated as 'owned' by persons. In the context of discussing practices of storytelling, Sacks introduced the notion of speakers' entitlement, or their right, to having personal experiences. Sacks (1984, pp. 423–427) proposed that experiencing an event entitles a person to her experience and the involved feelings in a way which is quite distinct from those who might later hear about the event but who do not have the original experience. Thus, in situations involving the telling of a personal experience, the teller is routinely treated as being entitled to her experience, which is usually observed in extensive reporting of personal feelings. On the contrary, the story recipient is only entitled to knowledge of the event, not the teller's emotions, when hearing the story or when subsequently reporting it onwards to a third party. This led Sacks to suggest that unlike knowledge, which can be spread fairly freely, experiences get 'isolated' so that there are limits to how good or bad people are ordinarily permitted to feel for an event that has not happened to them personally.

On another occasion, Sacks (1992a, pp. 32–33) observed that besides personal experiences, lay people are also treated as being entitled to their opinions, in contrast to the professional knowledge of for example psychiatrists. In this way, opinions can provide a 'permissible way of talking' for lay people and function as a 'mediating device' in conversations with professionals.

Such a distinction between domains of information on which individuals are systematically treated as having primary rights to their personal information is also evoked in the early classification of knowledge items for discourse by Labov and Fanshel (1977). The authors distinguished between the following five categories of knowledge items, which they found to be relevant in psychotherapy sessions (p. 100):

A-events	known to A, but not to B
B-events	known to B, but not to A
AB-events	known to both A and B
O-events	known to everyone present

D-events known to be disputable

According to Labov and Fanshel (pp. 100-101), these categories of knowledge distribution help explain why grammatically declaratively formatted statements made of B-events by A, as well as those made of A-events by B, are heard as requests for confirmation, not as assertions. What is important for such a mechanism for action recognition proposed by Labov and Fanshel (1977) is that both speakers need to know the category which the knowledge item in discussion belongs to in order for them to recognise what is being done. In their account, typical items that are generally expected to be known by an individual include their emotions, daily experiences (cf. to Sack's (1984) 'entitlement to experience'), as well as their past biographical details.

In a similar vein, Pomerantz (1980) differentiated between knowledge items, which competent subject-actors have both rights and obligations to know, such as their name and doings (type 1) and those that they know by virtue of having heard, seen or inferred them (type 2). In a practice she described as 'fishing', a speaker asserts type 2 knowledge to elicit information from his recipient who has type 1 knowledge regarding the matter. An empirical example that she gives is the utterance "I rang earlier but you were out", which the recipient then responds to by providing an account of her earlier whereabouts (p. 189). According to Pomerantz (1980), such topicalisations of epistemic asymmetry appear to be used for rather delicate social actions, as they provide an opportunity to the recipient to provide information, make an invitation or an offer, and answer an accusation without being explicitly called to do so.

Taken together, the work by Sacks (1984; see also Heritage, 2011), Labov and Fanshel (1977) and Pomerantz (1980) illustrates practices in which the distribution of certain kinds of knowledge items is treated as stratified between interactants in a systematic manner, so that people are generally expected to know more about their personal experiences, central aspects of their social identity, their relatives and friends (see also Heritage & Raymond, 2005, p. 36). It also suggests that the ways in which speakers assume knowledge to be distributed between them may have consequences for how actions are formed and recognised, pointing towards an explanation for the routine observation that 'questions' as a category of social action can come in a broad range of grammatical realisations and not all interrogatively formatted turns function as questions.

Contemporary developments in social epistemics

One of the most active researchers in the current field of social epistemics is John Heritage, whose recent publications (e.g. 2010, 2011, 2012a, 2012b, 2013) have played a key role in consolidating previous CA findings into a more systematic framework for analysing how knowledge is interactionally managed. Two analytical constructs which are frequently used in contemporary CA work are *epistemic status* and *epistemic stance*. Heritage defines epistemic status as the

relative epistemic access to a domain or territory of information as stratified between interactants such that they occupy different positions on an epistemic gradient (more knowledgeable [K+] or less knowledgeable [K-]), which itself may vary in slope from shallow to deep (Heritage, 2012a, p. 4)

The above quote conceptualises access to knowledge as not only relational, i.e. something which manifests itself in conversation between two or more interactants, but also relative, in the sense that interactants position themselves in relation to what they take their co-conversant(s) to know at some point in time. Speakers' relative states of knowledge concerning some domain of information fall on a continuum whose end points are formed by absolute knowledge and no knowledge at all. When the knowledge states of (two) interactants are visualised on a graph, an epistemic gradient can be formed between them, which may range from a steep slope (i.e. one speaker has absolute knowledge and the other none) to a more or less flat one (indicating equal access). Elsewhere, Heritage (2012c, p. 377) makes a distinction on the grounds of terminological simplicity, on the one hand between referring to 'knowing' and 'unknowing' positions in situations where an absolute epistemic advantage is claimed, and on the other hand, between K+ and K- positionings in situations where a more flat epistemic gradient is assumed and displayed.

According to Heritage (2012a, p. 4), the relative epistemic status of a person not only varies between knowledge domains and over (longer) time periods but it may also change in and as a result of interaction.² Drawing on prior CA research on knowledge in social interaction, some of which have been introduced in earlier sections of this chapter, Heritage (2012a, p. 6) identifies one's own 'thoughts, experiences, hopes, and expectations' as well as 'relatives, friends, pets, jobs, and hobbies' as information domains to which individuals are usually treated as having primary epistemic access. One's epistemic status is for the most part, and particularly to these domains, treated, according to Heritage (2012a, p. 6), as 'presupposed', 'agreed upon' and 'enduring'.

If epistemic status is concerned with parties' more or less established 'joint recognition' of their knowledgeability and rights to certain information (Heritage, 2012c, p. 376), the notion of epistemic stance in contrast describes how such relations are expressed in and constructed through turns-at-talk. In many types of action sequences, speakers use a wide array of grammatical, linguistic, prosodic and embodied resources to construct their turns so that they epistemically position the speaker and the recipient. This can be illustrated in the way propositionally equivalent information can be requested through a variety of grammatical turn designs, such as in the following example turns provided by Heritage:

"Are you married?"
 "You're married, aren't you?"

² Heritage does not address such changes of epistemic status over time in any more detail. However, from the point of view of how knowing and learning are accomplished through interaction, such changes are extremely interesting and arguably offer the analyst access to participant practices for indexing learning.

“You’re married.” (Heritage, 2012a, pp. 6–7)

Heritage suggests that the difference between the three turns is neither in the propositional content (i.e. whether or not the recipient is married) nor in the epistemic status of the recipient (all turns address information which the recipient may be reasonably held responsible to know), but in the knowledgeability of the speaker that is encoded in the utterances. Whereas the first utterance treats the recipient’s marital status as unsure to the speaker, thus indexing a ‘steep’ K-/K+ epistemic gradient between the interactants, the second and the third examples represent more ‘knowing’ formats that index an increasingly ‘flat’ epistemic gradient, as they treat it more certain that the recipient is married.

According to Heritage (2012c, p. 378), speakers generally maintain consistency between their epistemic stance expressed through turns and their epistemic status as well as congruence with that expression and the status of their recipients. Such *epistemic congruence* occurs, for example, when relatively unknowing speakers ask questions and knowing ones make assertions in response to those questions. Thus, epistemic congruence refers to parties’ intersubjective understanding of their knowledge states, which is established over a succession of turns and sequences, not in any individual turn (Heritage, 2012c, p. 379). Stivers et al. (2011b, pp. 10, 16) further propose that epistemic congruence is not only a matter of agreeing upon the interlocutor’s access to a domain of knowledge but it may also concern reaching an agreement on which interlocutor has relative *epistemic primacy*, which is at stake in situations where someone’s claim to knowledge is challenged. On the other hand, as Heritage (2012a, p. 7) acknowledges, there are practices in which speakers’ epistemic stance and the status it encodes are ‘dissembled’, a prime example being the ‘fishing device’ for requesting information described by Pomerantz (1980).

Although many sequence types are concerned with speakers’ practical understandings of each other’s access to knowledge – such as pre-sequences to news announcements which aim at establishing the knowledge state of the recipient (Terasaki, 2004, pp. 183–186), the grounds to assess states of affair (Heritage & Raymond, 2005; Pomerantz, 1984a) and formulations of place and person reference (Sacks & Schegloff, 1979; Schegloff, 1972) – perhaps the clearest example of a conversational practice that is warranted by knowledge management is represented by adjacency pairs formed by ‘questions’, or more accurately information requests, and answers.³ Using Heritage’s framework of epistemics, presenting an information request involves using resources to construct a turn that positions the speaker’s knowledge state as K- and projects the recipient as at the very least potentially K+. The epistemic foundations of such adja-

³ As Stivers and Rossano (2010a, p. 16) point out, question appears to be ‘a gloss for an utterance that makes response relevant’, and is not an action that speakers actually do in interaction, as opposed to requesting information, inviting, suggesting, etc. (see also Schegloff, 1984, pp. 29–36). However, in much previous research ‘questions’ are used somewhat synonymously to ‘information requests’.

gency pairs can be seen in interactants' normative orientations to the very production of a 'knowing' second pair-part response. Thus, a standard response to an information request is to provide the solicited information, and in cases when such an answer is not provided, its lack is generally accounted for with a claim of insufficient knowledge, e.g. "I don't know" (see e.g. Heritage, 1984b, pp. 249-251; Stivers & Rossano, 2010a, p. 7), an account that can be seen to rectify the presumption that the recipient is K+, indexed by the first pair-part.

Using the analytical constructs of epistemic status and stance, Heritage (2012a) empirically investigates the role played by speakers' orientation to epistemic status, the 'real life' distribution of knowledge between the speakers, in determining what action a specific turn is doing. Analysing a collection of various sequence types, Heritage (2012a) is able to show a systematic orientation by interactants to their relative epistemic status as being a more significant resource than the epistemic stance encoded by morphosyntax and intonation for determining whether a turn is requesting or asserting information. He argues that the encoding of epistemic stance works as a 'secondary lamination' to epistemic status, and in cases of incongruence between status and stance, it is the former that takes precedence, which explains for example why declarative utterances may be heard as soliciting information, to the extent that many languages actually manage without an interrogative format for indexing polar requests for information (p. 24). The implications of the fundamental role of social epistemics for co-conversants are that there is a need to constantly monitor each other's relative knowledge states regarding the domain of information relevant to the current activity in order to construct, interpret and recognise actions in a competent manner. This they accomplish by maintaining a so-called 'epistemic ticker' (see e.g. Heritage, 2012a, p. 25, 2012c, p. 386), essentially a scorecard tracking who knows what. Although Heritage (2012a) does not mention recipient design in the context of discussing the K-/K+ framework, the affinities between epistemic ticker and the sort of analyses speakers may need to conduct in order to address their talk to specific others are striking.

Besides providing a frame of reference against which actions may be formulated and recognised, Heritage (2012b) has elsewhere proposed that knowledge asymmetries play a key role in motivating and driving sequences of interaction. Using the metaphor of a 'K+/K- epistemic seesaw', he argues that an indication of an information imbalance between speaker and hearer is enough to warrant interactional sequences that themselves are dedicated to removing this imbalance. When the imbalance is considered to have been addressed and equalised for the practical purposes of whatever is being accomplished, the sequence will be closed. Thus, people's orientation to sharing whatever they know is in Heritage's terms the 'engine' that drives conversational sequences.

In many ways, the framework for social epistemics presented by Heritage (2012a, 2012b) draws on ideas on the role of information sharing and its encoding in turns-at-talk that in one form or another had been under the analytic lens of not only previous CA research but also that conducted in the field of prag-

matics (e.g. Grice, 1975). What may prove out to be perhaps most significant in Heritage's account is the possibility for a systematic inquiry of epistemics provided by the K+/K- heuristics which he opens up, as well as the degree to which he finds his observations on micro-level interactional phenomena resonance in a range of psychological, linguistic, sociological and evolutionary theories of human communication and its origins. In Heritage's (2012c) view, the ability to recognise other actors' knowledge states and attribute intentions, investigated within theory of mind (ToM) tradition (see e.g. Astington, 2006; Pyers, 2006) is a precondition for social interaction. Transmission of information is in an equally central role in the social brain hypothesis, according to which the evolutionary development of human intelligence and language may be related to an increase in social group size, which requires more effective processing from any individual group member in order to manage a larger circle of members (see e.g. Dunbar, 1993, 2003). As Dunbar (2003, p. 174) observes, language is an essential tool for keeping an accurate database of one's allies and enemies, predicting and manipulating the behaviour of other group members, as well as keeping track of what has happened in our social group during our absence. Moreover, as typological and linguistic research on evidentiality (e.g. Aikhenvald & Dixon, 2003; Mushin, 2013) has discovered, languages have systematized resources to mark ways in which knowledge is known to the speaker. And lastly, as pointed out by Sidnell (2012), the analytical constructs of epistemic status and stance enable the investigation of a range of topics, such as what are the more nuanced components of action recognition, and how epistemic status might best be conceptualised in complex epistemic circumstances in which participants may both have access to some phenomenon but the access itself may be of different kind (such as between a masseuse and client). One perhaps surprisingly complex epistemic context may be found in classrooms, which are the focus of the next section.

2.2.2 Orientations to knowledge in (language) classrooms

Conversation analytic research on the role of knowledge in classrooms is a fairly recent research area, as is systematic CA work on epistemics in general. Most of the work focusing on the organisation of classroom interaction has portrayed lessons and classroom turn-taking as institutional interaction in which two parties, the teacher and a body of students alternate to take turns (Lerner, 1993, 1995; Payne & Hustler, 1980; Sahlström, 1999, pp. 81–85). This section will first offer a brief, epistemically-grounded reanalysis of the common conceptualisation of classroom interaction as three-part action sequences through which teachers invite and evaluate student responses. It will then review some recent studies that have specifically focused on the treatment of knowledge claims and displays in interaction between a teacher and an individual student.

In one way or another, knowledge and understanding are key components of the institutional goals of instruction in many types of classrooms; they can even be seen as the warrant for formal education. Put simply by Seedhouse (2004, p. 183), the core goal of L2 classroom interaction is that 'the teacher will

teach the learners the L2', a property that sets it apart from everyday conversation which does not have such educational agenda. Similar institutional goals with perhaps slightly differently formulated learning objectives can also be discerned in other forms of education, so that for example in content-based language contexts such as CLIL, the core goal is to teach the students language *and* subject-specific content. From the student's perspective, the other side of the 'teaching coin' is obviously learning, which in a CLIL environment not only involves knowing *how* to use language (something that can be glossed as 'communicative competence'), but also knowing *that* of content that is 'set out as relevant by the school curriculum' (Dalton-Puffer & Nikula, 2006, p. 244).

If 'learning' is understood as a change of knowledge state, it becomes apparent that there is a need to interactionally display, monitor and manage such states in the course of accomplishing this institutional goal. In other words, there is a profound need for interactional practices for assessing what students already know - what would be the point of teaching something that students already know or can do?⁴ Similarly, there is a need for practices through which students can show how they perform with regard to specific learning items, whether those that are pre-defined as relevant by the curriculum or those that emerge as 'learnables' (Majlesi & Broth, 2012) in the moment-by-moment interaction. Equally importantly, there is a need for teachers to assess their students' performance and the validity of their knowledge. From this viewpoint, the practical work of teaching may be seen as monitoring what students know or do not know, and using this information to adjust their lesson plan 'on the fly'.

Keeping these institutionally-relevant needs in mind, we can begin to look at some frequent practices for organising 'lessons'. A common observation across a number of research paradigms concerning those interactional sequences that recognisably accomplish teaching in the classroom is that they appear to involve three distinct and successive contributions from the two parties, the teacher and a collective of students.⁵ In previous literature, these contributions have often been labelled as teacher Initiation - student Response - teacher Evaluation, or IRE in short (see e.g. Mehan, 1979a), although other labels, such as the IRF (F signalling feedback) are often used to refer to such three-part instructional sequences of classroom interaction. As Mehan (1979b, p. 54) has also pointed out, the IRE sequence in effect consists of two related adjacency pairs (initiation-reply and reply-evaluation). There is a substantial body of literature

⁴ Note that this is also a violation of the maxim to design your talk to another with an orientation to what you know they know (Sacks, 1992b, p. 564).

⁵ Classrooms in CA are usually subsumed under the rubric of institutional as opposed to everyday interaction, as they have an institutionally-defined goal (i.e. teaching and learning) and specific practices, such as those related to turn-taking, through which the goal is pursued. However, this should not be taken to mean that all talk in a classroom is oriented towards that goal. Rather, as Markee and Kasper (2004) point out, talk takes place in and is used to index a number of different speech exchange systems, or 'classroom talks'. Nevertheless, it is curious to notice that even very young children who have not yet started school often can produce remarkably accurate representations of the canonic three-part teaching exchange when 'playing school'. This indeed suggests that a model of how this particular institution works is learnt at a very early age.

investigating the pedagogic value of IRE sequences, which, depending on the account, may be seen as the embodiment of pedagogic practices that constrain student participation to minimal, predetermined responses, or as a fairly accommodating action template which the participants modify through various expansions to address locally arising concerns related to teaching and learning (see e.g. Lee, 2007; Long & Sato, 1983; Margutti, 2010; Nassaji & Wells, 2000). Previous research on IRE has also explicated the organisational features and interactional work, such as practices of turn taking and allocation, through which the sequence is constructed, as well as examined the opportunities for participation and learning that such an activity can afford the students. Yet another research interest which can be identified relates to the institutional participant roles, which are established through the deployment of IRE sequences. Most importantly, I would like to argue that these enduring roles and the nature and manner of contributions to IRE sequences show an orientation to the institutional goal of classroom instruction and related epistemic asymmetries.

To begin with, a frequent remark made on teachers' questions that initiate sequences in the classroom is that they are quite different from 'genuine' requests for information, but more aptly characterised as questions to which the teacher already knows the answer, to the degree that the answering students may even need to consider 'what the teacher has in mind' (Drew, 2012, p. 62; Heritage & Clayman, 2010, pp. 27-28; Mchoul, 1978; Mehan, 1979a; Nystrand, 1997). Drawing on Heritage's (2012a) heuristics, teacher initiations of an IRE sequence are thus routinely understood as coming from a K+ epistemic status, as opposed to representing K- information requests, which their morphosyntax and thus epistemic stance indexes. In previous literature, such 'questions' have been referred to in various terms, such as 'known information' questions in the ethnomethodological tradition (Mehan, 1979a) or 'display' questions (Long & Sato, 1983) in SLA. Asking known information questions is such a conventionalised feature of classrooms that pedagogic approaches that are positioned as alternative, such as dialogic teaching (Nystrand, 1997) can differentiate themselves from traditional approaches by virtue of grounding teacher-student interaction on 'authentic' questions instead. Furthermore, studies of classroom turn-taking have revealed that teachers commonly address their questions to an individual student either by selecting that student to respond as part of the initiation turn, or following an insertion sequence formed by students' hand-raising and teacher turn-allocation (see e.g. Mchoul, 1978; Kääntä, 2010, 2012; Sahlström, 1999). These selection practices entail the making of an individual student's knowledge display relevant for the instruction of the whole cohort. However, in certain contexts, teachers may also solicit choral knowledge displays from their students (Hardman, Abd-Kadir & Smith, 2008; Margutti, 2006, 2010).

In classrooms in which students follow the practice of bidding for a turn by raising their hand, such hand raises routinely signal to the teacher that the student both knows the answer to the teacher's question and is willing to provide it: in other words, they provide immediate epistemic feedback to the

teacher. In the context of making the observation that the first student to raise their hand rarely gets nominated to answer, Sahlström (1999, pp. 93–109) argues that hand-raising is an effective tool for the teachers to manage the progression of interaction in a way that establishes a sufficient ‘listenership’, i.e. enough students who bid for an answer turn and thereby claim to be knowledgeable. Sahlström also remarks on how closely co-ordinated these claims to knowledge through hand-raising are: when a student is selected, other bidding students immediately lower their hands, thus treating the selected student as the rightful owner of the response turn. Moreover, he suggests that there is a sequential location in which a hand-raise can be done to claim to know the answer but which does not run the risk of being nominated to answer (p. 107). Such a slot occurs when another student has just been nominated but before she has got far enough in her turn so that the raised hand could be seen as projecting disagreement, in which case it would be vulnerable to later turn-allocation by the teacher.

In addition to teacher initiations, the epistemic significance of the second (response) and the third turn (evaluation of or some other operation on the response) to the classroom participants has been well established in prior research. For example, the temporal parameters of turn-transition from initiation to response are routinely treated as being indicative of the responding student’s knowledge state. Among the earlier evidence for this is Mchoul’s (1978, pp. 189–197) observation that, following a question, students sometimes take ‘time-outs’ to think about their answer but if they are deemed too long, the delay may be treated as a sign of that student’s not having understood the question or not knowing how to answer it. It is for this reason that Macbeth (2004, p. 716) suggests that nominated students may use various “‘pre-positioned’ remarks’ (and presumably also hesitation tokens such as ‘erm’ or ‘uhh’) to indicate that the question has been heard and that an answer is being formulated, thus warding off any possible implications of ‘not knowing’ that may be instantiated by delay. Sometimes teachers also orient to a long silence after turn-allocation by conducting what Sert (2013) has termed ‘epistemic status checks’, which are explicit queries to whether the nominated student in fact knows the answer, such as “No idea?” or “You don’t know?”. Sert’s analysis suggests that besides delays, various embodied signals accompanying a delayed answer, such as gaze withdrawals and facial expressions are some of the visual resources which teachers take as indicators of the knowledge state of the nominated student.

Similarly, a delay in the production of the teacher’s third turn after a student response may be treated as carrying epistemic weight. As Macbeth (2003, 2004) has pointed out, delayed third turns are heard to project a negative evaluation of the student’s just-prior response, in a similar fashion to how delay projects a dispreferred turn in everyday conversation (see e.g. Pomerantz, 1984a). Thus, according to Macbeth, the fact that correctness and adequacy of a student’s reply can be heard in the temporal parameters of a teacher’s third turn serves the production of public knowledge and understanding as ‘the standing task and achievement of classroom instruction’ (2004, p. 716). Similar observa-

tions have been made by Hellermann (2003, pp. 96–97) in describing how other students may orient to a gap following a student response as a sign of a less than perfect answer by attempting to secure a turn and improve that response.

Besides delayed third turns, the locally contingent ways in which teachers manage their body and semiotic artefacts appears to be treated significant for the task of assessing the adequacy of a student response. For example, Kääntä (2010, pp. 197–211) shows how teachers may project their third turn to contain a negative evaluation of the student's response by withholding the revealing of an answer key on the overhead projector or cutting off their action of writing down the correct answer on a transparency sheet. Sometimes evaluation of a student response is intertwined with - and implicit in - other social actions which teachers do through third turns to accomplish the practical work of teaching. Lee (2007) describes some of such actions, which include the parsing of questions into smaller components following a problematic student response, steering the teaching activity in a stepwise manner, intimating the nature of the sought-for answer, as well as making students' language errors into learning objects. What these actions described by Lee (2007) have in common, however, is that they convey that the student response is in need of some sort of elaboration and solicit a further contribution from the class on the topic under discussion. Taken together, these observations indicate that anything except an on-time, positive evaluation of a student response, or an immediate closure of the topic (and continuation to another one) may be heard as the initiation of evaluation that the response has been somehow and/or to some degree insufficient.

Even beyond whole-class IRE sequences, various other displays of epistemic access can be widely observed in lessons. Investigating teachers' explanations of mathematical problems in one-to-one discussions with individual students, Koole (2010) argues that teachers regularly call for the instructed student to produce two different types of displays of epistemic access, displays of *understanding* and *knowing*. According to Koole, displays of understanding and knowing represent different interactional objects and are systematically observed in different sequential environments. Firstly, when teachers take an extended turn to explain a student how to proceed with a specific problem, they frequently end their turn by requesting the student to claim understanding of the teacher's just-prior advice (through turns such as 'Do you understand?' followed by 'Yes'). Alternatively, when the task-explanation sequence has what Koole refers to as 'dialogical organisation', in the sense that the teacher guides the student through multiple question-answer sequences, the teacher frequently requests the student to demonstrate their knowing. Koole (2010) argues that in such circumstances a claim of knowing is not enough but it needs to be backed up with additional evidence for the claimed knowledge. Furthermore, this knowledge can be of two sorts: whereas explicit 'Do you know?' questions require the student to demonstrate a 'having known before' type of knowledge, other syntactic formats, such as wh-questions or yes/no interrogatives are designed to guide the student to produce knowledge 'there-and-then'. In response to such questions, the student is invited to produce a demonstration of having

gained epistemic access to the instructed matter as a result of the teacher question. All in all, Koole's findings highlight the intricate nature of classroom epistemics and how it serves the institutional purpose of teaching and learning.

Elsewhere, Koole (2012) has examined how students' understanding problems are formulated in teacher-student interaction. He found that instead of first inviting students to formulate what their problem actually is, teachers tend to assume a specific problem and invite the student to align with this projected problem. Occasionally, this can lead to the student to indicate a lack-of-fit between her problem and the teacher's formulation thereof. These observations led Koole to argue that the way participants orient towards understanding problems in classrooms fundamentally differs from everyday conversation: whereas teachers are routinely established as epistemic authority over students' problems, in everyday conversation the thoughts and experiences of an individual are treated as their 'own' (see the previous discussion on entitlement to experience and opinions, also Sacks, 1984, pp. 423–427, 1992a, pp. 32–33).

Taken together, previous research investigating the three-part teaching sequence and epistemics in classroom context suggests IRE sequences are a key resource for managing knowledge in teacher-student plenary interaction. Such sequences recognisably do the work of teaching and learning by co-constructing and publicly ratifying knowledge as learning objects for students to acquire. Even if IRE and the teacher practice of asking display questions has come under criticism, Macbeth (2003, pp. 257–260) has argued that IRE may be a particularly effective social practice in the early grades where the teachers are faced with the task of instructing those 'who profoundly do not know their curriculum'. In such a context, it is especially useful to have systematic means for making knowledge public and observable for anybody present in the classroom. Insofar as classroom learning is organised in this way, previous research has highlighted the role of the teacher as an epistemic authority whose K+ status derives from the institutional identity (see e.g. Stivers et al., 2011b, p. 16) and is expected by all parties engaged in the classroom. The way specific interactional practices are accomplished in teacher-student interaction constructs and indexes the institutionally-derived identities of a teacher (knower) and a student (learner). It is against this backdrop that contributions to whole-class talk that make relevant other identities may be vulnerable to be heard as turns-at-talk that undermine the moral order of the classroom (see e.g. Margutti & Piirainen-Marsh, 2011) and thereby construct non-learning activities. However, as Markee and Kasper (2004) point out, there is a wide range of interactional practices, or 'talks', going on at any given moment in the classroom. Previous research on knowledge management has tended to focus on the way it is accomplished in whole-class, plenary interactions, and conversely, not investigated epistemic organisations in peer groups. Thus, very little is known about how students manage their own and each other's access to knowledge objects that relate to pedagogic tasks, whether epistemic status between peers may best be conceptualised as uni- or multidimensional (see Sidnell, 2012), or what 'heuristics' do students use in determining the import of information-relevant actions of their

peers when epistemic primacy cannot necessarily be a priori presumed (see Heritage, 2012d). The contribution of this study to the existing literature is in exploring such matters.

2.3 Language learning in and through social interaction

2.3.1 A brief history of interaction for SLA

The role of social interaction for second language acquisition (SLA), as well as the nature of the mechanisms through which interaction might benefit acquisition, is one of the focal areas in the research field of SLA. Although, as Ellis (2010) points out, SLA research is characterised by theoretical pluralism, a broad distinction can be discerned between ‘cognitive’ and ‘social’ theories of language acquisition (see also Atkinson, 2011). The former tend to involve a more psycholinguistic orientation to the central concepts of the field, with language generally being conceptualized as a speaker-external set of linguistic systems, the acquisition of which happens when the learner internalizes or assimilates such systems into their existing mental structures in the course of the acquisition process (see e.g. Hall & Verplaetse, 2000, p. 1,6; Van Patten & Benati, 2010, p. 5). Social interaction, then, is not only a possible site of but also a vehicle for acquisition.

The origins of the interest in interaction in research on SLA date back to observations made in the late 1970s on how native speakers (NSs) modify and simplify their language when conducting conversations with non-native speakers (NNSs). For this, the data was not necessarily obtained from naturally occurring conversations; Ferguson (1975), for example, asked his research participants to write sentences to a hypothetical group of illiterate NNSs who speak no English. In the early 1980s, Michael Long (1981, 1983a) drew on these observations to propose that the modification of linguistic input (in terms of grammatical form, word choice, etc.) provided by NS speech and the interactional, sequentially-evolving processes such modifications entail and are employed for may benefit SLA. Within SLA research, this became later known as the Interaction Hypothesis (Long, 1983b, later revised in 1996), which has led to a plethora of studies investigating these interactional modifications – or *negotiation off/for meaning* – which native and non-native speakers conduct when attempting to avoid and repair trouble, such as when requesting clarification, checking the NNS’s understanding and speaking slower.

Besides describing the interactional and observable practices that native and non-native speakers use to negotiate meaning, a central pursuit within this line of research has been to identify those learner-internal mechanisms which may be ‘triggered’ by the conversational practices, and which potentially contribute towards acquisition. In his later revision of the IH, Long (1996) suggested that these include the focusing of the learner’s attention to a specific linguistic form (see also Schmidt, 1990), the provision of negative and positive evi-

dence of what is grammatical in the target language, as well as the modification of the NNS's own output following the noticing of a linguistic problem through e.g. a clarification request by the NS. As argued by Swain and Lapkin (1995), the mental processes between the noticing of a problem in one's own production and its reformulation during such 'language-related episodes' is part of second language learning.

Whereas the research framework provided by the IH often involves the analysis of dyadic everyday conversations, a different, yet related, line of inquiry has pursued connections between L2 classroom interaction and learning in the context of teachers' practices for dealing with learner errors in whole-class talk. Much of this work on teachers' corrective feedback (CF) has been conducted in Canadian immersion classrooms, a setting that shares some similarities with CLIL. In a seminal contribution, Roy Lyster and Leila Ranta (1997) distinguished between six different types of error treatment, of which recasting the learner's utterance without the error was the most common corrective feedback technique employed by the teachers, even if it was an inefficient way to secure audible learner uptake of the correct form (p. 56). It has since then been suggested that recasts are indeed possibly less efficient for acquisition than more explicit types of corrective feedback in which the teacher 'prompts' the student to correct the erroneous utterance (e.g. Lyster, 2004; Ammar & Spada, 2006). On the other hand, whether or not recasts or any other corrective feedback moves can provide negative evidence to the learner regarding the grammaticality of his prior utterance depends on his orientation to the social action realised by the teacher's turn: in a meaning-focused classrooms, a teacher recast may not necessarily be 'noticed' as doing recasting, but may instead simply be treated as a confirmation of meaning (see also Ellis & Sheen, 2006, pp. 596-597; Nicholas, Lightbown & Spada, 2001, p. 749). In immersion/content-based classrooms, the effectiveness of a particular interactional move for SLA may thus involve the (re)aligning of participants' orientations between 'content' and 'language', so that language items that are made 'noticeable' in fact do become 'noticed'.

A central purpose of the attempt to identify effective forms of corrective feedback is in trying to feed these findings back into pedagogic practices (of content-based teaching). This may involve the formulation of instructional suggestions for dealing with either the overt teaching of language form or the management of language errors in classroom interaction (see e.g. Ellis, 2001; Long, 1991; Lyster, 2007). A relatively common assumption in this line of work, particularly in the (quasi-)experimental research focused on the relative merit of feedback moves, is that individual features of classroom interaction can be tweaked to render it maximally effective for language acquisition - instead of seeing lessons as socially accomplished activities which have specific institutional aims and a social organisation that relates to those aims.

A more recent development in SLA theory involves the investigation of language learning using the analogy of complex adaptive systems, which has its origins in natural sciences. Often referred to as either complexity theory

(Larsen-Freeman, 1997, 2011) or dynamic systems theory (De Bot, Lowie & Verspoor, 2007), this research enterprise argues that many key phenomena in SLA, including acquisition itself, are more aptly characterised as complex, non-linear and self-organising systems of actors that can adapt to environmental feedback rather than involving a linear dependence between two isolated variables (traditional cause and effect dependence). Often quoted examples from natural sciences include a flock of birds, in which the actions of individual birds interact with each other, without a leader, to produce the highly coordinated and skilled choreography of the flock. Besides a research interest in how the system's structure emerges bottom-up, from the operation of its constituent parts, the notion of nonlinearity in CT/DST provides a systematic framework for investigating the frequent observation that learning does not always proceed in a stepwise progression but often involves 'forgetting things' or the inability to transfer learnt items and skills beyond the original context. It is for this reason that Larsen-Freeman (2011, p. 52, footnote 4) prefers the term 'development' instead of 'acquisition', which she sees as implying a one-off process of taking in a 'static entity' (language).

To date, there is fairly little research on social interaction in the framework of complexity theory. One of the few studies to touch on that aspect is provided by Seedhouse (2010), who examined the extent to which L2 classroom interaction may in fact be conceptualised as a complex adaptive system, motivated by prior claims in the literature that it indeed is one. Seedhouse compared key characteristics of complex systems, established in previous research, with how properties of L2 instruction play out in IRE sequences. He found that some of these characteristics would appear compatible, such as the nonlinearity between intended and actual pedagogy. However, Seedhouse (2010, pp. 20–21) also suggested that the metaphorical and vague use of CT outside the originating fields may make it somewhat problematic to 'classify' phenomena such as spoken interaction as a complex system, even if the establishment of such a link would potentially allow research findings from other systems contribute towards how we understand interaction.

2.3.2 CA-SLA

From around the turn of the millennium, CA-oriented research has begun to investigate connections between (language) learning and social interaction, on the one hand looking at which interactional and material resources and social practices might work as affordances for learning, and on the other hand, the ways in which learning itself may be seen as fundamentally social in nature. The origins of this enterprise can be traced back to a seminal critique of mainstream SLA research by Firth and Wagner (1997), who, drawing heavily on prior CA work, questioned what they saw as a too individualistic and mechanistic way to investigate discourse in SLA. Instead, they argued for a more context-sensitive and participant-relevant (i.e. emic) methodology. This critique coincided with what is sometimes referred to as the social turn in SLA (see Block, 2003) and has since inspired a large number of conversation analytic

studies addressing language learning. The research project has subsequently become referred to as CA-for-SLA (see the special issues in the *Modern Language Journal* in 2004 [88/4] and 2007 [91/3]) or later simply CA-SLA (Kasper & Wagner, 2011; Pekarek Doehler, 2010).

Since then, there has been a rapidly growing body of studies that either combine CA microanalyses of interaction with a variety of exogenous theoretical accounts of learning or explore learning by using traditional CA analytical constructs. Previous CA-SLA research has focused attention to the ways in which learning and learning behaviours may be accomplished in and through practical social activities. Such activities may sometimes have a specific learning purpose but not always. Besides studies conducted in classroom settings (see e.g. Hellermann, 2006, 2007, 2009, 2011; Markee, 2008; Mondada & Pekarek Doehler, 2004; Mori & Hasegawa, 2009; Mori & Markee, 2009; Mori, 2004; Pekarek Doehler, 2010; van Compernelle, 2010), several studies have investigated learning in dyadic or small group contexts that have a more or less pre-specified pedagogic purpose (Hauser, 2008, 2013; Kasper, 2004; Melander & Sahlström, 2009a, 2009b; Savijärvi, 2011; Vehviläinen, 2009; Young & Miller, 2004), as well as in various everyday settings (Kääntä, Jauni, Leppänen, Peuronen & Paakkinen, 2013; Lilja, 2010; Martin, 2009; Piirainen-Marsh & Tainio, 2009a, 2009b).

With its origins in sociology, CA is an empirical research field that studies the ways in which social action is structured and organised. At a methodological level, CA-SLA shares with CA the same ethnomethodological approach (for an introduction, see Hutchby & Wooffitt, 2008; Psathas, 1995; ten Have, 2007). It is an empirical method which in an attempt to investigate the emic logic of social (and language learning) practices tends to avoid applying a priori theoretical assumptions to research data, which overwhelmingly are (video) recorded, naturally-occurring interactions. Consequently, what is of importance is that which the participants make relevant in interaction (Kasper, 2004) in observable practices and behaviours.

As part of methodological assumptions (see section 3.2 for more information), CA(-SLA) posits that speakers' contributions are 'doubly contextual', i.e. context-shaped and context-renewing (see Heritage, 1984b, pp. 241-244; also Psathas, 1995, pp. 2-3). In line with this, CA-SLA conceptualises speakers' orientations and actions above all as local and sequential accomplishments (see Markee & Kasper, 2004, p. 495), rather than direct expressions of mental states or individual cognition. Thus, researchers working within CA paradigm have a tendency to reject 'talk as a window' into individual minds and the idea of speech as the representation of a pre-existing thought (cf. Edwards, 1993; Mori & Hasegawa, 2009), not least because of principled caution. However, this does not mean CA withdraws from research on 'cognitive' topics - as section 2.2 has shown, 'knowledge' has a long history in CA - but rather that the viewpoint on cognition and learning is distinctly *inter-mental* as opposed to *intra-mental*. Instead of individual cognition, CA research investigates socially shared cognition in speakers' procedural work to maintain intersubjectivity (Schegloff, 1991),

i.e. their work to understand each other for the 'practical purposes' of the ongoing activity, which the speakers sustain by displaying in every turn an understanding of the just-prior turn (see Heritage, 1984b, pp. 254–260). A central tenet of CA, and indeed the second assumption mentioned above, thereby is that interaction is built on the participants' interpretations of their and their co-conversants' intentions and cognitive states (see e.g. Levinson, 2006). As Seedhouse (2005, pp. 559–560) points out, it is such understandings of the current context, which routinely involve individual speakers' cognitive states and are entwined in the sequential context, that can be portrayed and analysed by CA. Thus, CA can illustrate the nature of these kinds of displays of understanding and investigate the degree to which they are in fact treated as interactional objects: however, the question whether they 'actually' are what goes on in an individual speaker's mind at the moment when displayed is beyond a CA methodology. In any case, one can argue that for pedagogically relevant classroom research that aims at feeding into teaching practices, it may be more important to tap into cognitive topics such as knowledge as an interactional object, which participants observably manage rather than examining them as an intramental phenomenon, since it may be that the former has more bearing on the proceedings of classroom interaction.

Looking at the body of CA-SLA, a broad dividing line can be drawn between studies that describe, often using cross-sectional collections, speakers' interactional work that appears as learning-relevant and studies that investigate learning as a phenomenon that involves change over time, discernable in longitudinal data (see e.g. Kasper & Wagner, 2011; Pekarek Doehler, 2010). In the following sections, I will review previous research related to these different CA-SLA approaches to learning, and outline issues that current research has identified as methodologically challenging. These mainly relate to conceptualisations of learning, (changing) participation, and the role of exogenous models in theorising about learning.

2.3.3 Learning as local, situated practices

From a very early stage of CA-SLA onwards, a clear research focus has been to empirically identify practices of social interaction which have the potential to function as affordances for learning in a variety of contexts. Within this line of inquiry, language learning is often conceptualised as a process of problem-solving rather than a 'passive, static possession of mental objects such as memories and concepts' (He, 2004, p. 573). Accordingly, the use of conversation analytic methodology is justified by its ability to offer a highly sensitive approach to describing the nature and deployment of various micro-social practices for learning (e.g. Larsen-Freeman, 2004, p. 607); in other words, the ways in which participants engage in what might be referred to as 'doing learning' (Brouwer, 2003; Firth & Wagner, 2007).

Such a conceptualisation of language learning as problem-solving⁶ was clearly visible in e.g. Brouwer's (2003) description of how non-native speakers of Danish conduct word searches in everyday interaction with native Danish speakers. In CA terms, word searches are an interactional practice whereby a speaker breaks off a turn and pauses to search for a word or a phrase, either by himself or by inviting the co-participant to join in the search (Goodwin & Goodwin, 1986; Helasvuo, Laakso & Sorjonen, 2004; Schegloff, Jefferson & Sacks, 1977). Brouwer noted that word searches are not always necessarily accomplished for the purposes of language learning but they can have a communicative function, such as signalling to the co-conversant that the following, searched-for referent may be somehow problematic (pp. 537-538). However, NNSs do also initiate word searches in order to invite help from their NS interlocutors, and in the course of doing so, they may orient to the latter's expertise in the language being used, which they draw on to resolve the word search. According to Brouwer (2003, pp. 542-543), such an orientation to the roles of a novice and an expert, as well as the recycling by the NNS of the lexical items proffered by the NS, are locally-occurring instances of vocabulary learning.

Word searches are not only conducted in everyday conversation, but they also appear to be deployed in the contingencies of task-accomplishment in the language classroom. Their role for classroom learning was examined by Mori and Hasegawa (2009), whose study drew on the notion of embodied cognition in an investigation that looked at how cognitive states were displayed and how these displays were treated as interactionally relevant manifestations of underlying mental states in word search sequences by students doing pair work in a Japanese language classroom. Some of the cognitive displays which Mori and Hasegawa (2009) found to be employed to resolve word searches included the use of the textbook as a resource for troublesome words, the verbalisation of searching processes to the pair, and the reliance on a shared classroom history to invent expressions that combine L2 with L1 to circumvent the problematic vocabulary item. Contrasting these observations with Brouwer's (2003) results not only illustrates how the ways in which a specific social practice (word search) may be differently accomplished depending on what resources are available to the participants, but it also points to the significant role of textual artefacts in the organisation of learning activities in the classroom. Furthermore, the analysis by Mori and Hasegawa (2009) of how cognitive displays are used for learning points to the interface of learning and knowing. As the authors argued that students assess each other's knowledgeability in order to determine whether their assistance is 'worthwhile' to the word search and invoke a shared history to determine the means to be used in the search, they describe strikingly similar epistemic practices that Heritage (2012b) later referred to with the notion of 'epistemic ticker' (see section 2.2.1).

In a similar vein, Mori (2004) conducted a single case analysis of a student pair in a Japanese FL classroom working on interactive pair tasks. Rather than

⁶ The notion of learning as solving problems can be seen to relate to a broader discussion within SLA on the merits of explicit vs. implicit processes for acquisition.

imposing a researchers' definition of learning on the data, a key analytical interest in her study was to examine learning from an emic viewpoint, i.e. what exactly participants treat as learning and learning opportunities. Besides word searches, Mori found that the conversational practices students would treat as learning-relevant included repair, which they deployed to initiate side sequences in which they addressed problems related to lexical knowledge that had emerged during their pair work. Such side sequences would often involve code-switching to L1 and emerged as a result of the participants' joint negotiation and constituted 'learning opportunities'. Converging observations on the interactional contingencies related to learning objects in classrooms were made by Mondada and Pekarek Doehler (2004), who, inspired by Vygotskian ideas on social mediation, investigated how tasks were negotiated in whole-class interaction in a French as a second language classroom. The authors noted that even grammar tasks, which are generally presumed to be individual, are accomplished and reconfigured in and through social interaction, where they become fundamentally multi-layered. One of the extracts they discuss involves the class discussing a play, in connection to which the teacher draws the students' attention to a noun (*la compréhension*, 'understanding') that is used in talk about the play and makes it salient through speech and by drawing it on the blackboard. Mondada and Pekarek Doehler (2004, pp. 512–514) argue that in doing so, the teacher achieves a twofold focus on the form of a lexical item and its communicative content (understanding of the play), which they see as a consequence of the permeability of learning tasks and activities which allow for shifts of focus between different learning objects. It is important to note here that such permeability and the interactional renegotiation of tasks adds a layer of complexity to the nature of learning objects worked on in classrooms. As in the account by Mondada and Pekarek Doehler (2004), in sequences described by Mori (2004) and later by Mori and Hasegawa (2009), the very renegotiation of learning tasks presented the students with learning opportunities, which are difficult to see as a linear consequence of predetermined pedagogic planning in the form of lesson plans. Rather, as in the study by Mori and Hasegawa (2009), learning objects were not necessarily those that the pedagogic activity itself targeted (such as the practicing and acquisition of certain sentence structure) but those which emerged in the maintenance of that very activity. These observations point to an intricate relationship between the intended pedagogy and participants' interactional work for learning in the course of accomplishing tasks and activities, and relate to a critique by Seedhouse (2005) for conflating the two (task-as-workplan vs. task-in-process) in SLA studies on recasts.

In word searches, what counts as an acceptable resolution to the search (and attainment of the learning object) can in L2 conversation be a complicated matter that relates to participants' orientations to epistemic asymmetries and the degree of shared history, especially when the participants draw on the resources of multiple languages. For example, Kurhila (2006, pp. 111–117) described how NNSs of Finnish may use the practice of "fennicizing" foreign-language words, i.e. adjusting them to the phonology and morphology of Finn-

ish, in order to make unknown referents identifiable in administrative encounters. In such situations, the fennicized words tend to be presented as tentative solutions through marking them with the use of e.g. soft voice as items that are subject to further interactional work and the approval of the NS. On the contrary, the aforementioned study by Mori and Hasegawa (2009) described how a similar practice was carried out in peer talk in the FL classroom in which the students share a native language (English). Their data illustrates how “Japanized” English may be used for purposes other than seeking confirmation and, in contrast to the official encounters described by Kurhila, may be heard as having humorous undertones (see Mori & Hasegawa, 2009, pp. 85–88). These differences may reflect and construct the difference in the degree and kind of institutionality between peer talk and administrative encounters, so that there may be more space for joking and less need for conveying a specific understanding or an idea. However, they also constitute different orientations to the linguistic repertoire of the participants, so that by not establishing a ‘proper’ target language expression for a Japanized English-language word, the participants treat each other as effectively bilingual, at least for the practical purposes of the activity.

Besides word searches, another interactional practice which has been linked to language learning is repair, which in CA treatment is seen as a systematic conversational organisation for resolving trouble in speaking, hearing and understanding talk, which can be both initiated and resolved by *self* or *other* (see e.g. Schegloff et al., 1977).⁷ Obviously not all repair sequences are automatically learning-relevant, such as those in which participants make it clear that they treat the trouble source as resulting from non-hearing. However, participants’ work to sustain and repair intersubjectivity is a domain in which learning may become a relevant matter. Compared to word search sequences, which can be used to addressing a (lexical) learning object that has not yet been articulated, i.e. the searched-for word, other-initiation of repair provides a means for the participants to bring into focus some prior element of the co-participant’s talk. Looking at how other-initiated repair is accomplished in everyday conversation between NNS and NS Finnish-speakers, Lilja (2010) found that it provides a rich context in particular for the learning of unknown lexical items in NS talk. In her study, an orientation to learning in repair sequences was usually displayed by the NNS once intersubjectivity had been secured, that is, following the identification of a trouble source and its repair. In these expansions to repair sequences, the NNS would often repeat the trouble source and possibly engage in a conversation about its meaning and (correct) use with the NS. Such actions that were superfluous to the maintenance of understanding, the very task of repair, were taken by Lilja as a participant orientation to learning, through which they treated the sequences as not only to do with achieving shared understanding but also language learning (pp. 209-234, 284-285).

⁷ In fact, the practice of word search is commonly conceptualized as a type of self-initiated repair (see e.g. Schegloff et al., 1977, p. 363).

As argued in section 2.2.2, in many kinds of classrooms a central analytical resource for participants to identify possible learning objects is provided by a mutual orientation to the students' knowledge state. As part of a theoretical critique of CA-SLA studies that rely on an external learning theory, such as sociocultural (SCT) or a community of practice (CoP) theory, Lee (2010) describes how learning objects are discovered and dealt with in the course of pedagogic activities in whole-class interaction in an ESL classroom. In Lee's account, local contingencies of talk (rather than predefined teaching agenda) are a crucial analytic resource which the participants use to determine which linguistic objects that are part of the on-going activity should be made 'teachable'. In the empirical examples Lee provides, learning objects are a part of a turn-at-talk which either the student orients to as unfamiliar, for example by asking the meaning or a synonym of a specific word, or which the teacher interprets as including a possibly unknown item to the students by providing clarification or checking word meaning. In the same way, Majlesi and Broth (2012) describe what they term as 'learnables', i.e. parts of the activity or the setting which one of the participants in the classroom orients to as unknown and which are then attempted to resolve through a side sequence. Besides words, these learning objects as unknown referents can also be embodied actions, such as the use and meaning of a gesture (pp. 202-204).

Yet another practice that has been identified as a possible affordance for language learning in a number of contexts is repetition. In the classroom, not only are lexical items that are made into learning objects often repeated by teachers and students in the course of word explanations (Mortensen, 2011), but also sequences involving error-correction by the teacher seem to involve a fair deal of repetition by both participants (Rolin-Ianziti, 2010). In settings that are closer to everyday conversation, the recycling of previous language is also a way to engage with the target language of immersion: Savijärvi (2011, pp. 167-213) observes that the language 'chunks' which kindergarten-aged children recycle get more complex as their language skills increase. In informal contexts, speakers may use repetitions to topicalise previous (foreign language) utterances and initiate sequences for working on such utterances as learning items (see Kääntä et al., 2013), and as mentioned earlier, repetition following repair completion is one way to mark the sequence as one that has to do with language learning (Lilja, 2010). Moreover, the topicalisation of language items through repetition need not stem from prior talk between the interactants. Even joint video-gaming may involve quite complex practices of repetition which offer opportunities to practice target language as gamers reproduce the talk and written language that they observe in the game, often stylizing the utterances and mimicking their prosody (Piirainen-Marsh & Tainio, 2009a, 2009b).

The kinds of learning activities that speakers accomplish when engaging in various practices such as word searches, repair, repetitions, and direct questions points out to the relevance of contingent problem-solving, whether that is for the purposes of maintaining intersubjectivity or doing the institutional business of classrooms. It has also been suggested that learning manifests itself and

is indexed in other ways. For example, Firth and Wagner (2007, p. 809) suspect that sequences involving what they term as ‘problem-based learning’ simply cannot account for all language learning, as they seem to be fairly rare in their data from business and everyday encounters and mainly used for lexical learning.⁸ Such an elusive nature of learning in interaction is also recognised by Lindwall and Lymer (2008), who refer to interactions that are not readily recognisable as neat and ‘clear-cut’ instances of learning but instead represent the ordinary forms of educational practice as the ‘dark matter’ of instruction. Firth (2009) has later argued that some of the subtle work that interactants conduct by fitting their talk to a particular hearer (i.e. recipient design) involves continuous micro-level learning, as they have to assess the language competence of their interlocutor, reformulate their own talk, etc. In the context of lingua franca conversations, this may mean sharing non-standard language resources and using them in the ensuing interaction (Firth, 2009, pp. 144–148; see also Firth & Wagner, 2007, pp. 808–809) – in a manner similar to the Japanized English described by Mori and Hasegawa (2009).

2.3.4 Learning as changing participation over time

Many CA-SLA studies such as those reviewed in the previous section have focused on the sequentially developing accomplishment of learning tasks and activities both in teacher-student and peer interaction, the specific micro-interactional practices underlying such accomplishment, as well as how learning objects that emerge in interaction may differ from those targeted by the pedagogic task design. However, such an approach that offers an account of learning by investigating students’ local interactional work as they go about their tasks has also been criticised. Much of this critique seems to revolve around the empirical warrant for identifying certain task environments or interactional practices as ‘opportunities’ or ‘affordances’ for learning. One of the earliest expressions of this critique was voiced by Susan Gass (2004, pp. 599–600), who argued for the need to document learning by going beyond a local analysis of interaction. Her concern was that without evidence of learning having taken place, it remains difficult to establish a link between the process of acquisition, i.e. those interactional features and practices that are identified by the researcher as potential learning opportunities, and the products of acquisition. A similar methodological appeal has later been made in the context of CA work in educational settings by Ference Marton (2009, pp. 214–215), whose requirement for pedagogically relevant studies involves an investigation of ‘what is supposed to be learned, how it is learned, and what is *actually* learned’ [emphasis added].

These calls for the need to somehow document the products of learning have subsequently inspired a vivid discussion about how learning in fact may be ‘visible’ in interaction. One commonly advocated solution has been to use

⁸ Indeed, the focus on lexical learning is common in the research previously reviewed in this section.

longitudinal data which allows the same participant(s) to be followed for an extended period of time, in an attempt to establish a more robust link between changes in local interactional features and learning products (see e.g. Lafford, 2007, p. 749; Larsen-Freeman, 2004, p. 607; Wagner, 2004, p. 615). In subsequent research, such a conception of learning as change over time has come to be operationalised in different ways and levels of granularity. One frequent solution has been to draw on the distinction between two metaphors of learning, acquisition and participation, proposed by educational researcher Anna Sfard (1998), in order to conceptualise learning as involving change in participation rather than in mental states or other speaker-internal cognitive structures. In Sfard's distinction, these metaphors are often seen behind individual theories, so that theories employing the metaphor of acquisition tend to view learning as the accumulation of knowledge, concepts, representations, ideas, grammatical structures or other 'possessable' constructions. On the other hand, the participation metaphor characterises theories that see learning as a socialisation process into, or an apprenticeship within, a community or a social group.

Sfard's (1998) original article was quite evidently not meant as a go-ahead to simply pick whichever of the two metaphors best happens to suit an individual study, as is made clear by its title "On two metaphors for learning and the dangers of choosing just one". However, various learning theories which are in essence participation-based have since become widely used in CA-SLA, in an attempt to track longitudinally occurring changes. At a first glance, they appear to offer CA a way in to the analysis of learning by providing an alternative to the psycholinguistic conceptualisations of the concept as acquisition in cognitivist SLA. As mentioned above, this is above all an intra-mental process that involves a clear separation between an external language system and its acquisition as internalisation of the said system into the learner's mental structures (see e.g. Hall & Verplaetse, 2000, p. 1.6; Van Patten & Benati, 2010, p. 5), and which for those reasons would be beyond the reach of CA methodology (for an expression of this line of reasoning, see Wagner, 2004, p. 614). In CA-SLA, one of the most widely used theoretical account of learning is that of *situated learning*, whereby it is seen as an integral part of socialisation into a community of practice (CoP), and not a reifiable process that can be separated from the context (Lave & Wenger, 1991). Such a view problematizes a clear separation between language use and learning. In their account, Lave and Wenger were particularly interested in the ways in which various communities quite unremarkably reproduce themselves by transforming newcomers into old-timers (see e.g. pp. 29, 47, and 122). It was this change in participation over time, which takes place as individuals move from what they term as *legitimate peripheral participation* towards *full participation* in the practices of such a community (p. 29) that they conceptualised as learning. The inherent intertwining of participation and learning is apparent in Lave's (1993, pp. 5-6) later claim that "there is no such thing as 'learning' sui generis, but only changing participation in the culturally designed settings of everyday life".

The framework of CoP has inspired a particularly substantial body of research in CA-SLA investigating language learning as longitudinally changing social interaction rather than an individual cognitive phenomenon. One of the earlier examples come from Young and Miller (2004), who studied the gradual change in participation in weekly feedback sessions between a writing tutor and an ESL learner over a period of four weeks. Having first established sequences typical to the practice, the authors then analysed their data for changes in the participation framework in the accomplishment of those practices. Young and Miller were able to demonstrate a change relating to the two participants' roles at the event so that, towards the end, the student assumed some of the interactional tasks such as identifying problems with the text and proposing candidate solutions, which the tutor had initially been responsible for. This change in the organisation of the event led the authors to conclude that the student had, overall, acquired 'interactional competence in the practice of revision talk' (Young & Miller, 2004, p. 533).

The theory of situated learning has subsequently been applied to investigations of learning of a number of different types of objects and practices over various lengths of time. It seems apparent that a conceptualisation of learning as socialisation lends its hand to an analysis of some learning objects better than others, such as the ways in participants conduct activities as opposed to e.g. how they learn lexical items through repair. In terms of length of observation time, among the most systematic inquiries have been presented by John Hellermann (Hellermann & Cole, 2009; Hellermann, 2006, 2007, 2009, 2011), whose studies are based on classroom data that spans over several months or even years. The objects of learning in Hellermann's work tend to be grounded in specific conversational practices or organisations, such as how pair tasks are opened, or the way focal participants conduct conversational repair, changes in which provide evidence of learning. In one article, Hellermann (2009) analysed the repair practices of one adult learner of English in classroom interaction over 18 months, focusing on the way she initiated and conducted conversational repair (self-initiated self-repair, or SISR). Besides a gradual increase in the frequency of SISR during the period, Hellermann noticed that there was a shift in the grammatical constituents which the learner oriented to as repairable items at different points of time, so that in the beginning personal pronouns represented a more frequent trouble source than later on. In the article, Hellermann conceptualised the learner to be in the process of socialisation into two related and overlapping CoPs, that of 'English language users' and that of the learner's classroom. The shifting orientation by the learner to what in her talk needs repair was, according to Hellermann (p. 129), part of her move from peripheral towards full participation in the CoP of 'English language speakers'.

Using a similar approach, Hellermann and Cole (2009) described the way yet another adult learner disengages from dyadic interaction with other learners as part of a serial task during which he is meant to go round and interact with a number of peers. The focus of their analysis was on how he accomplishes it as part of a similar task on his first day at an ESL class and 16 months later. By

showing transcripts of the focal student's interactions, the authors first described how his task disengagement practices changed microgenetically on the first day. This was afforded by the repetitive nature of the task, so that after having observed his pairs use a token of appreciation ('thank you') to signal disengagement, he also began to use it. Moreover, the way the practice was accomplished also involved changes between the two periods of time during which he had moved from beginner to intermediate class. As is perhaps expectable, 16 months later the focal student overall employed more verbal moves to accomplish the same disengaging practice, but he was also able to produce talk that was not directly task-oriented and shift the focus of the encounter through task expansion questions. As in Hellermann (2009), the authors argued that such changes were part of the focal student's move from peripheral towards full participation in two different CoPs.

CA research has also demonstrated that the participation changes which members orient to as a domain of learning need not be linguistic in the sense of a verbally accomplishable practice. Using the usual distinction between self and other in repair initiation and resolution (Schegloff et al., 1977) as a point of departure, Martin (2009) analysed changes in the way a patient's shoulder movement was corrected in encounters between a physiotherapist and the patient over nine months as part of a task of re-learning the correct movement of shoulder after injury. Martin noticed that a gradual change emerged regarding who was responsible for initiating and completing the correction, so that there appeared to be a progression from other-initiated other-correction (i.e. both by the physiotherapist) towards self-initiated self-correction (i.e. by the patient). The learning task itself did not stay the same throughout the process, as the physiotherapist varied the task, for example, by using a thicker rubber tube to resist the movement and introducing a new movement pattern or a body position. These contextual differences manifested themselves as 'steps back' in the learning process, which Martin characterized as stepwise and gradual, containing changes back and forth in the form of shifts between other and self-correction. Martin's (2009) study thus presented evidence of learning as situated, changing participation that demonstrates itself as changes in the sequential organisation of interaction (both talk and embodied action) between a physiotherapist and a patient.

In a study combining the frameworks of language socialisation and CA, Cekaite (2007) described the development of a seven-year old Kurdish girl over her first year in Swedish-language reception class. Focusing on her self-selections to take a turn in whole-class interaction, Cekaite noticed that the participation roles which the girl assumed shifted considerably over the course of the academic year, so that her participation changed from being nearly silent through actively breaching the norms of classroom turn-taking to anticipating turn-completion points and employing timely self-selections. Drawing on the CoP framework, Cekaite (2007, p. 58) argued that such turn-taking skills are resources which have an important impact for gaining entry into the classroom community.

More recently, longitudinal CA-SLA has also been connected with usage-based accounts of language and its learning (see Tomasello, 2003). In an attempt to relate locally contextual language to long-term development, Eskildsen (2012) investigated the development of English negation of two adult L2 speakers in two video-recorded classroom corpora spanning over 2 and 3½ years. In what could also be characterised as a mixed methods study, Eskildsen first analysed the frequencies of different negation types in five different recording periods, making observations of each speaker's developmental trajectories. He then used CA methods to investigate the emergence of [you don't] + [verb] construction to replace [you no] + [verb] in the linguistic repertoire of one of the speakers, making observations of the social actions which the two are used and the local affordances for learning in the interactional environment. Eskildsen noted that earlier instances of the more target-like construction [you don't] + [verb] were in fact recycled elements of other speakers' turns, after which the focal speaker started to self-repair [you no] + [verb] into [you don't] + [verb] construction before beginning to use it across a broader range of verbs. These observations, according to Eskildsen (2012), lent support to the Vygotskian conceptualisation of learning as taking place through performance that is scaffolded by others in the learner's Zone of Proximal Development (see e.g. Lantolf & Thorne, 2006, pp. 263–290).

Besides studies that track down the development in the way participants accomplish certain conversational practices over a long period of time, the notion of learning as change in participation has also been analysed using data that spans over shorter time scales. For example, in a study that combined sociocultural theory (SCT) of development and CA, van Compernelle (2010) looked at how a university learner of French and his teacher constructed an opportunity for learning the colloquial form of negation in the course of a proficiency interview. Following the teacher's use of the particular form (*t'aimes pas* as opposed to the more formal *tu n'aimes pas*) in a question, the student identified the linguistic form as trouble source. The participants first engaged in repair to restore mutual understanding and subsequently identified the form as an unknown item and made it into a learning object. A few minutes later in the interview, the student demonstrated his understanding of the shortened form, as well as ability to use it in his own speech, resulting in what van Compernelle (2010) referred to in the framework of SCT as 'incidental microgenetic development'.

Similar micro-longitudinal changes have been explored by Helen Melander and Fritjof Sahlström (see e.g. Melander & Sahlström, 2009a; Melander, 2009, 2012; Sahlström, 2011; Slotte-Lüttge, Pörn & Sahlström, 2012), who take as their starting point for a longitudinal analysis those interactional instances where speakers observably seem to 'do' learning, as opposed to describing changes in the way certain practices, such as repair, are structurally organised. To give an example, Melander and Sahlström (2009b) examined how a topic, the size of a blue whale, was constituted and developed over time in interaction between three 7-year-old children reading a picture book together. Using a video record-

ing of a single event lasting 12 minutes as their data, the authors traced sequences in which the children oriented to the size of the blue whale, which was featured in the picture book. Melander and Sahlström noticed that the topic of the conversation seemed to evolve throughout the activity as the children collaboratively constructed a perception of how big the whale was by assembling together the book's semiotic properties, pointing and talk. Considering these shifts in the way the children related to the size of the whale as learning, the authors argued that such changes were not simply an expression of inner states but resided in interaction between the speakers, constituted by the elaboration of different sign systems at a specific time (2009b, pp. 1526, 1535).

The way Melander and Sahlström (2009b) treated the group of three children reading the book as a single 'organism' whose jointly produced perception of the size of the whale constitutes a learning object instead of focusing on the learning of individual children participating in an activity raises interesting questions regarding whose participation can warrantably be seen to change in social interaction. Underlying much work that investigates learning as change in participation is a notion that the turns taken by a learner and the way she e.g. conducts repair sequences can be attributed to her instead of being a joint accomplishment by all present co-conversants. This individualisation of courses of interaction thus provides the foundation for claiming that individual learning has happened in the case of some change over time. It is in this sense that the contribution by Melander and Sahlström (2009b) begs the question whether their description of the evolving understanding of the size of the whale is an example of learning or rather co-construction of knowledge that is accomplished in and through interaction. Furthermore, it raises the question to what extent a distinction between these two concepts, knowledge and learning, can be made.

Elsewhere, Sahlström (2011) has reported data following a multilingual, preprimary-aged child in her interactions at school and home over a period of one week. Sahlström approaches the longitudinal data by tracking down instances in which the child and a friend of hers do a specific activity, that of teaching each other and learning to count from one to ten in English. In doing so, he shows how this activity involves the assuming of various epistemic positions, such as those of a knower and not-knower, and how the two girls construct the activity by frequent explicit references to prior and future events and activities beyond the immediate sequential context, such as when asking each other to count 'one more time' (p. 56). In other words, the girls make it clear to each other that they treat the events in question as having to do with learning, and situate their shared learning activity in a longitudinal trajectory they are in the process of constructing. These observations led Sahlström to argue that beside a notion of learning as a product, it also (and in the first instance) is a social action, which participants quite literally 'do', for example when they orient towards their epistemic status and prior speech events in order to bring about epistemic change (2011, pp. 61-63). Sahlström's observations thus point towards epistemics as a motivator for learning.

Taken together, the way learning is described by Melander and Sahlström (2009b) and Sahlström (2011) is perhaps more in keeping with the ethnomethodological foundations of CA, which involve a focus on participant-relevant, i.e. emic, actions and categories, and the CA-SLA studies that investigate learning as locally contingent interactional work, than the longitudinal studies in which the way a speaker conducts a conversational practice is investigated at different time points. Moreover, the aforementioned contributions, as well as the more recent work by Melander (2012), in which she approaches learning as a changing knowledge distribution within a group, establish a conceptual bridge between CA work on epistemics and learning. The analysis of learning as an activity that is intimately tied to epistemic positioning as regards some content, e.g. the size of the whale, or the ability to do something (count in English) offers an interesting vantage point towards analysing change in learners' orientation to aspects of pedagogic tasks in their accomplishment in the classroom. This also informs the conceptualisation of learning adopted in the present study, so that learning is something that relates to changing practices of knowing. What exactly do such changes look like is an empirical question which needs to be answered with reference to interactional data.

2.3.5 Theoretical and methodological challenges in CA-SLA

Although CA and ethnomethodology are research projects that are interested in the methods for practical reasoning, knowledge and assumptions which members of a community systematically use to produce and recognise social action (see e.g. Heritage, 2008, pp. 301–303), they traditionally do not address the question how such methods are learnt (Pekarek Doehler, 2010, p. 120). It is for this reason that there is no 'go-to' theory of learning, but instead CA-SLA researchers have found inspiration in external theoretical accounts that relate learning to the concept of participation. Out of all the participation-grounded learning theories, the analytical construct of a CoP remains one of the most widely used within CA-SLA analyses, which view learning as longitudinally changing participation within a particular social group. As mentioned above, the theory of situated learning (Lave & Wenger, 1991) is very relational, as it targets the analytical focus on the relationships between old-timers and newcomers in a community. It is also worth pointing out that the theory is based on ethnographic studies of communities (e.g. midwives, tailors, meat cutters, and anonymous alcoholics, or AA) that may quite easily be seen to involve apprenticeships, and whilst the theory appears to be offered as an analytical perspective to all kinds of learning contexts (see Lave & Wenger, 1991, pp. 37–39) its applicability to, for example classrooms, is perhaps not immediately obvious. Thus, despite the popularity of CoP and other theoretical models of situated learning in CA-SLA, the question has been raised whether or not the use of external learning theories is fundamentally compatible with the ethnomethodological orientation of CA (see e.g. Hauser, 2011, 2013; Kasper, 2009a; Markee & Seo, 2009; Mori & Markee, 2009; Mori, 2007). For example, Hauser (2011, 2013, pp. 465–467) has criticised the use of exogenous theories in

CA-SLA in the context of responding to the previously introduced study by Hellermann and Cole (2009). Hauser's main concerns were that there may be a tendency to force the data to fit the predetermined theoretical concepts of a CoP and legitimate peripheral participation even in cases when the match may not be so obvious. Hauser recognises that the focal participant described by Hellermann and Cole (2009) does indeed learn to make his task disengagements more sophisticated over time, but warns that it may be unwarranted to conceptualise his different ways of accomplishing the action as legitimate or peripheral participation. More generally, Hauser critiques the application of CoP in learning settings outside the original apprenticeship contexts described by Lave and Wenger.

Part of the issue of the role of exogenous theories in CA-SLA relates to the exact role they are given in the analytical process. For example, Kasper and Wagner (2011, p. 125; see also Kitzinger, 2008) point out that it is quite usual for researchers studying learning to begin their data analysis by identifying sequences in which participants appear to orient to learning one way or the other; similarly, following their analysis, the researchers may relate their findings to theories of development. Such post-analytical reference-making to external theories may mitigate the risk of an a priori theory driving the analysis, as is also recognised by Hauser (2013, pp. 466–467).

Besides the concern for the a priori use of possibly unfitting theoretical constructs raised by Hauser (2011), the use of CoP or other theories that view learning as socialisation into the practises of a particular community may in some cases be problematic because of differing time scales of change. Socialisation into a community in the work by Lave and Wenger is a process that happens over a fairly long period of time and may therefore not be an entirely fitting metaphor for the kind of moment-by-moment interactional adjustment to each other by parties in conversation, which happens for example when we pick up appreciation tokens from our co-conversants, as described by Hellermann and Cole (2009).

It is perhaps a paradox that while the use of exogenous theories such as CoP seems to enable the investigation of language learning as longitudinal changes in social interaction without involving the cognitivist connotations of vocabulary that is often used to refer to knowledge and learning (for this, see Potter, 2006, pp. 137–138), it may be that these theories lend their hand more easily to certain types of learning situations and objects than others. It is relatively easy to see the merit of an account of learning as socialisation into a community when the changing participation concerns shifts in who is treated as responsible for accomplishing specific interactional tasks in tutor-student essay feedback sessions (Young & Miller, 2004), or what kinds of interactional roles are afforded to a newcomer during her first year in L2 classroom (Cekaite, 2007). However, the learning of specific language items or academic content in the classroom may be more difficult to conceptualise as instances of socialisation, and the extent to which it represents that to the involved participants remains to be demonstrated. In contrast to the original apprenticeship context of CoP

theory, and as has been argued in section 2.2.2, learning in content-focused classrooms is designed to take place through structurally different kind of activities, as it is often organised around knowledge objects, unlike for example in communities of tailors (see also Carlgren, 2009; Knorr Cetina, 2001, pp. 184–185).

It is for the aforementioned tension between theoretical accounts of learning and the empirical analysis of interaction conducted by CA that there have been calls to develop a more ‘spelled-out’ perspective on approaching development and learning, and to re-specify what learning would be in terms of processes and change over time (see e.g. Markee & Kasper, 2004; Sahlström, 2009). Two related methodological suggestions for tracking down content-relevant learning over longer periods of time have been suggested by Markee (2008) and further developed by Markee and Seo (2009), termed by the authors as learning behaviour tracking (LBT) and learning talk analysis (LTA).

According to Markee (2008), LBT involves two methodological techniques, which are learning object tracking (LOT) and learning process tracking (LPT). The former is simply documenting when a learning object occurs during a particular time period, while the latter has to do with using the techniques of CA to demonstrate the participants’ language learning behaviours. Such tracking procedures are based on the practice of unmotivated looking (see Markee, 2008, pp. 404–405). Demonstrating his proposal, Markee analyses how an adult Chinese ESL learner appropriates into his interactional repertoire a vocabulary item (‘prerequisites’), which was presented on a power point slide and which the students in the course oriented to as problematic. Presenting two extracts from two days apart, Markee shows how the teacher marks the vocabulary item as noteworthy when introducing and defining it on the first day (pp. 414–415), and how the student and the teacher engage in repair two days after to recover the word following the student’s use of a made-up word in its stead (pp. 417–419). On this occasion, the students in the course also repeat the word several times *sotto voce*, as if to practice its pronunciation.

Markee (2008, pp. 408–409) suggests that language learning is often achieved through repair sequences in which on the one hand non-comprehension is made relevant, or various ‘emphatic assertions of understanding’, which may involve smiling, thinking gestures, translation and pointing to information in written texts. These social displays can be subjected to a CA analysis even without an exogenous learning theory. However, Markee (2008, pp. 409, 421) is ready to admit that not all learning manifests itself as observable behaviour, and that furthermore, it may be equally difficult to obtain enough evidence of independent language use of the specific learning object. What is more, when used in situations where learning objects do not translate straightforwardly to a single word but may be more complex, and perhaps more aptly glossed as ‘content’, such as the size of the blue whale (Melander & Sahlström, 2009b), LBT may turn out to be problematic.

In essence, LBT seems to be a way of tracking instances of language recycling across speech events and using CA methods to analyse affordances for their local production. In this sense, it comes close to Eskildsen’s (2012) usage-

based investigation of the development of English negation. LBT is also similar to studies that focus on shifts in topical orientation or epistemic positioning in that it too targets the attention to what learners are actually doing when they are engaged in 'learning' and how they position themselves vis-à-vis some learning objects. The methodological demonstration by Markee (2008) was further developed by Markee and Seo (2009), who explicated more thoroughly the theoretical foundation of what the authors now referred to as learning talk analysis (LTA). In this account, Markee and Seo (2009) found common ground in the ethnomethodological epistemology shared by CA and discursive psychology (DP, see e.g. Edwards & Potter, 2005; Edwards, 2006; Potter, 2006), which investigate constructs such as mind, cognition, affect and learning in and as observable interactional practices.

In outlining the research programme represented by LTA, Markee and Seo (2009, pp. 41–45) systematically refer to language learning behaviour rather than language learning, in what appears to be an attempt to maintain agnosticism towards whether or not cognitive structures 'underlie' such behaviours. However, when speakers engage in language learning behaviours such as repair and 'produce new language', they display to their co-conversants (and the analyst) that 'they have learned new language in the short and/or long term' (p. 45). Thus, as Pekarek Doehler (2010) points out, CA-SLA does not deny that capacities or aptitudes would have an 'individual or even biologically determined dimension', but rather this is where the limits of a CA-based analysis lie.

As this and the previous sections have illustrated, the field of CA-SLA contains a broad range of different research foci addressing the intricate connections between learning and interaction. Previous studies have tended to focus their investigation on the interactional environments or contexts which may afford learning, the development of specific interactional practices or skills over time, and the ways in which participants observably orient to learning. Each of these viewpoints sheds light on a different aspect of learning, which is an elusive concept, but different research viewpoints may also have their blind spots. For example, by grounding a longitudinal analysis in predetermined categories to allow the comparison of cases over time, the analytical emphasis moves away from participant orientations (Lee, 2010, pp. 417–418; Lehtimaja, 2012, p. 60). Furthermore, even if research that documents learning by showing that a specific practice is accomplished differently at time x , $x+1$ and $x+n$ (e.g. Hellermann, 2009) may be seen to offer more robust evidence of changing participation, it does not necessarily answer the question *how* such changes have been brought about even if it is able to present an account of *what* kinds of developmental these changes construct. On the other hand, a focus on what kinds of changes take place over time, even if these are predetermined categories, can allow a CA analysis to find resonance with other research that assesses learner progress. Naturally the same implications of longitudinal research design hold for similar developmentally-oriented research beyond CA-SLA in the larger enterprise of cognitivist SLA.

The methodological challenges related to conceptualising learning as a longitudinally occurring change beyond the immediate sequential context include the need to explicate the very notions of change and context. As Lilja (2010, p. 287) points out, within CA-SLA there is no unified stance on what kind of changes in participation should be understood as learning. Furthermore, in what sort of temporal granularity does learning-relevant change operate? Moreover, according to Hellermann (2011), yet another basic problem in documenting change is how to establish that the changed behaviour appears in a 'similar' context. If the context is different, the new behaviour may be a reaction to it, which makes it difficult to argue that the change is attributable to an individual speaker. Part of these difficulties seem to stem from an attempt to abstract the individual speaker from interactions and attribute courses of social action to those individuals, even if CA has for a long time conceptualised social interaction as indeed *inter*-action of all present parties, including hearers (see e.g. the work on the role of mutual gaze for interaction by Goodwin, 1979, 1981). Seen this way, attributing change to individual speakers, as established through longitudinal collections of comparable cases may be somewhat problematic, even if it is evident that on many occasions participants themselves *do* attribute learning objects to individual speakers. Furthermore, as Wagner (2013) points out, the context of interaction is itself in continuous change: even in the 'simple' case of a longitudinal collection involving two speakers, the speakers gradually become more familiar with each other over time (see also Lilja, 2010, pp. 43–44).

Similarly, as Savijärvi (2011, pp. 17–18) argues, in studies in which the focus is on learning objects which the participants themselves orient to as 'learnables' (Majlesi & Broth, 2012) at a certain point in time, perhaps even locally demonstrating evidence of learning, it may be difficult to show that such a change is stable if there is no subsequent evidence of (independent) use of the target forms or referents. On the other hand, such a view presupposes that 'learning' proceeds in a stepwise direction and involves a somewhat permanent change, as opposed to coming to know something, or to learn a skill, which can later be forgotten. What is more, grounding the analysis in participant orientations to some objects as learnables only allows access to the kind of learning that is conscious or involves some sort of interactional 'noticing' (e.g. Schmidt, 1990). Savijärvi (2011, pp. 101–112), who followed Finnish-speaking children in a Swedish-immersion kindergarten over a period of two years, points out that in her data, children do not usually orient towards learning a second language but more often towards learning new skills. Even in the beginning when the children knew very little Swedish, they rarely made their non-understanding relevant even in cases where that was apparent, such as when their conduct showed that their responses had relied on the embodied actions of the teachers' rather than their talk. Yet, it is apparent that children will 'pick up' language in such contexts quite unproblematically. Savijärvi's findings beg the question of the degree to which learning can be 'seen' to take place in interaction in a similar fashion to the previously mentioned difficulties in seeing the 'smoking gun' of learning, as pointed out by Firth and Wagner (2007, p. 809).

The notion of learning as change over time and beyond the original context touches on the rubric of learning transfer in educational research. In Sfarid's (1998, pp. 9–10) distinction between learning as participation and acquisition, the notion of learning transfer as 'carrying knowledge across contextual boundaries' does not readily fit into the framework of learning as participation. And as Lobato (2006, p. 432) points out, without transfer, the notion of cumulative learning, i.e. that 'new learning is constructed from previous learning' cannot be easily sustained. Yet, it is something that is quite evident in a broad range of formal and informal learning settings, not least in the way educational institutions organise their learning objects in 'key contents' or 'learning goals', the mastery of which is required in order to proceed to the next level. It is in this regard that both of Sfarid's metaphors are needed, or as Carlgren (2009, p. 206) notes:

Even if knowing and acting are one and the same in interaction, the knowing can be taken away and be used in some other interaction. To see learning as something that can be separated from the interaction and participation structures does not necessarily imply a restriction of the phenomenon of learning to something cognitive only.

The above quote illustrates that conceptualising what exactly stays the same between actions or behaviour at different time points and across different speech exchange systems is crucial for documenting learning. From a CA-SLA viewpoint, this might be best tackled as an empirical problem by examining this 'taking away' as a participants' observable accomplishment. Speakers make connections across time and space by referring to previous interactional events, and this work can be seen as instances where they quite observably create relevance between semiotic resources in different domains and their earlier experiences, in other words achieve learning. This work may easily be overlooked in longitudinal research that relates participants' interactional work on specific learning objects at time x to the way those objects are drawn on at a later point in time, using this later occurrence as evidence for possible learning *at time x* (such as in Pekarek Doehler, 2010, pp. 108–114). The fact that a prior interactional event, knowledge or a personal experience may be invoked at a later point in time is not only a sign of knowledge 'carrying over' but the later event itself displays a participant's understanding that the prior knowledge or experience is somehow relevant in the new context. It is in this sense that accomplishing learning transfer by forging connections between speech events is still part of 'doing learning'.

Lastly, previous CA-SLA has tended to focus on the documentation of the learning of lexical items or changes in the accomplishment of interactional practices such as repair or task openings. The extent to which learning curricular content in classroom settings (of which research evidence is generally scarce in applied linguistics) is similar or different to the findings of previous CA-SLA literature remains to be empirically substantiated. As was argued in section 2.2.2, content-focused classrooms have a specific institutional purpose that is profoundly epistemic and are, as Knorr Cetina (2001, pp. 184–185) notes, organised around knowledge objects. When academic subject-matter is taught what

counts as learning may more often be conceptualised as ‘knowing that’ (e.g. WW II ended in 1945) rather than ‘knowing how’ (e.g. to open dyadic tasks). Therefore, it may be that at least part of content-related classroom learning is indexed in the way pupils *position* themselves in relation to the linguistic manifestations of the taught subject, how this positioning may change over time, and what kinds of identities, statuses, rights and responsibilities regarding knowledge emerge when pupils go about their learning (cf. topical orientation in Melander & Sahlström, 2009b). It is precisely for this reason that the present study brings together CA research on knowledge and learning by investigating students’ epistemic practices and their relation to learning. This may potentially contribute towards the development of a CA account of learning that is grounded in participant orientations, a matter on which the field has currently no unified stance.

2.4 Interaction in content and language integrated (CLIL) classrooms

2.4.1 CLIL as a form of bilingual education

Content and language integrated learning (CLIL) is often conceptualised as an ‘umbrella term’ for instructional programmes or practices that combine the teaching of curricular content and language, be that a second, foreign, regional or heritage language. In research literature focusing on bilingual education, a variety of sometimes overlapping labels and programmes are used to describe the combined teaching of language and content, such as language immersion, content-based language instruction (CBI) or simply bilingual instruction. Bearing in mind that there is internal variation in the implementation of each of these approaches, perhaps CLIL in particular, there has recently been some discussion regarding the extent to which these labels are in fact different or synonymous, in particular immersion and CLIL (cf. Cenoz, Genesee & Gorter, 2014; Dalton-Puffer, Llinares, Lorenzo & Nikula, 2014). What has emerged out of this debate is that the origins of CLIL are distinctly European and substantially driven by EU policy concerns, as it has been conceptualised in the context of European integration and a movement for promoting multilingualism through education in the 1990s, even if the label CLIL is nowadays also frequently used outside the continent. The origins of immersion, on the other hand, go back to the establishment of French immersion programmes for English-speaking students in Canada in 1960s.

Dalton-Puffer et al. (2014) further point out three prototypical factors which partly distinguish CLIL from immersion. First, CLIL languages tend to be either major or minor *linguae francae*, English being by far the most popular choice. Secondly, CLIL lessons are timetabled as content lessons, a characteristic that makes CLIL institutionally different from CBI, and thirdly, CLIL lessons do

not replace formal foreign language classes but are taught alongside them. In addition to these differences to immersion and CBI, CLIL teachers tend to be second language speakers of the institutionally-assigned medium of instruction and content teachers, not language specialists, with CLIL programmes typically involving less than 50% of the curriculum being taught through the target language (Dalton-Puffer, 2011, pp. 183–184; Lasagabaster & Sierra, 2010; Nikula, Dalton-Puffer & Llinares, 2013, pp. 71–72). The fact that the teacher and her students often share an L1 in the CLIL classroom thus enables the use of L1 as a resource for learning, which may not be available in other contexts where an L2 is used for learning academic content, such as when immigrant students study in mainstream education. Beyond these key features, there can, however, be quite a bit of variation in the way individual CLIL programmes are implemented.

Previous research on CLIL has investigated a broad range of aspects related to the way CLIL is implemented and what kinds of learning processes and outcomes such teaching may be expected to bring about. Besides language learning, CLIL research has also highlighted the role of language in and for the construction and learning of academic content. One of the major research inspirations employed in this line of inquiry has been systemic functional linguistics (SFL), which has been applied to CLIL settings to investigate the linguistic demands of, and students' participation in, various classroom genres and registers. Such CLIL work is theoretically connected to the notion of subject-specific literacies of schooling (Unsworth, 2000), of which history (Coffin, 2004, 2006a, 2006b; Morton, 2009; Schleppegrell, Achugar & Oteiza, 2010; Schleppegrell & de Oliveira, 2006; Schleppegrell, 2004) and science (Halliday & Webster, 2004; Halliday, 1996; Lemke, 1990; Veel, 1997) are perhaps the two most thoroughly studied school subjects. Much like other SFL research, this area departs from a consideration that knowledge and understanding of subject content and the discursive resources that are used to communicate that particular knowledge are largely inseparable (Hasan, 1996, p. 398; see also Unsworth, 2000; Veel & Coffin, 1996) – a position that has also been expressed in recent CLIL research (Dalton-Puffer, 2007, pp. 89–90; Gajo, 2007). Although a large body of SFL research in CLIL and in other settings focuses on mapping the subject-specific language genres in written texts, it has also been applied to the study of CLIL classroom interaction.

In this section, I will briefly review previous CLIL classroom-based research that relates to the focal areas of this study – how knowing and learning are accomplished in and through social interaction. As previous CLIL research has tackled these questions using multiple theoretical and methodological approaches, not only CA but also discourse pragmatics, systemic-functional linguistics (SFL) and sociocultural theory, this review is inevitably an attempt to synthesize findings that have been obtained from very diverse starting points. However, what many of the presented studies bring into focus, and thus add to the body of CA-SLA literature, is the diversity of learning objects and the inter-

relatedness of language and content that teachers and students in CLIL classrooms routinely negotiate.

2.4.2 Opportunities for learning in CLIL classroom interaction

A recurrent theme in CLIL research is the comparison of learning processes or products to those that can be obtained in traditional FL teaching. As is the case with research on classroom interaction in L1 settings, prior studies on CLIL interaction have tended to focus on issues related to the management of whole-class talk, in particular the three-part teaching sequence (IRE). There is some research evidence to suggest that the opportunities for language learning offered by CLIL lessons may be of different nature to FL lessons, at least when the latter focus on practicing and drilling linguistic form. For example, Nikula (2007a) employed a discourse-pragmatic perspective to compare the accomplishment of the three-part teaching sequences (IRF/IRE) in CLIL science and English as a foreign language (EFL) lessons at secondary level in Finland. In her analysis, she made observations not only on the frequency of the sequences but also on their structure and social functions. Her results indicated that the EFL lessons relied more heavily on IRFs, and that those IRFs that were found in the CLIL database routinely contained sequence-expansions, as opposed to the 'tighter' IRF sequences of EFL lessons. Nikula attributed these differences to the nature of the specific knowledge objects being worked on in the lessons, so that in EFL situations where homework is being checked, learning objects are often operationalized as linguistic items which can be either correct or incorrect. On the other hand, the knowledge objects dealt with, for example, in science lessons routinely involve the provision of justifications or elaborations in conjunction with student responses. Based on her findings, Nikula (2007a, pp. 195, 199–201) proposed that students in CLIL classrooms may have more opportunities to practice ways of doing argumentation in the foreign language than in FL lessons and, in general, have more varied ways of accessing the conversational floor.

Elsewhere, Nikula (2008) has investigated, using cross-sectional data, CLIL classrooms as environments for learning pragmatic skills. She focused on students' initiations as well as the management of misunderstandings and disagreements, using as data lessons from lower secondary school physics and biology. Her results indicated that CLIL students use linguistic resources for doing pragmatics that are different from those employed by native speakers, as they for example employ fewer discourse markers and pragmatic particles. However, despite having a narrower linguistic repertoire for expressing pragmatic meanings, CLIL students nevertheless do functionally manage pragmatics and engage in similar pragmatic practices to native speakers, as they for example orient to certain types of situations as potentially face-threatening by managing the degree of their directness. Nikula (2008) suspected that in CLIL contexts, pragmatic concerns have a direct bearing on how students are perceived by other participants, unlike in those language classrooms in which pragmatics might be studied from abstracted textbook dialogues.

One of the most comprehensive accounts of CLIL classroom interaction is provided by Dalton-Puffer (2007), whose cross-sectional, audio-recorded data comes from 14 classrooms in lower and upper secondary schools in Austria, covering both vocational and general academic oriented schools. The study combines a range of theoretical and methodological perspectives, one of which is CA, for an investigation of classroom questions, academic language, politeness and repair. When analysing questions, Dalton-Puffer (2007, pp. 94–126) draws on the distinction between display and referential questions, i.e. whether or not the answer of the question is known to the questioner. She notices that when teachers ask questions in CLIL classrooms, the former type tends to be associated with content instruction whereas the latter is employed in sequences dedicated to classroom and task management (or ‘regulative register’ in systemic functional linguistics). Thus, instead of asking questions that make relevant the provision of an explanation or a course of reasoning as in Nikula’s (2007a) data, the construction of academic content is largely accomplished through questions looking for specific ‘facts’ to which the students provide very short responses, often single words. Moreover, students themselves appear to ask questions very rarely. In another chapter, Dalton-Puffer (2007, pp. 126–171) examines the interactional production of what she terms as academic language functions, such as offering definitions and hypotheses, and finds them very rare. This observation is in line with the previously observed function of classroom questions to be geared towards producing facts, and one that leads her to conclude that CLIL classrooms may not be optimally conducive environments to learning such key academic skills (p. 170).

In addition to the study by Dalton-Puffer (2007), other studies conducted in CLIL contexts have been concerned with the ways in which participants manage the dual institutional goals inherent in teaching that combines content and language. Such research has explored the role of academic content in and for learning perhaps more than has been done in CA-SLA. As part of a dissertation consisting of case studies, Evnitskaya (2012) investigated how linguistic obstacles that arise during task work are tackled in teacher-student interaction in a CLIL science classroom. Evnitskaya (2012, pp. 171–198) conducted a single case analysis investigating the way in which the teacher turned the word ‘harmful’, which appeared in a task sheet on bacteria, into a learning object. Her analysis focused on the contextualisation work in the ensuing interaction by both the teacher and the students. She observed that during this word explanation activity, the participants drew on a wide range of knowledge, such as their shared L1 to probiotic consumer goods in order to contextualise the meaning of the word as it is used in the subject-specific discourse.

Student explanations were also in the focus of a single-case analysis reported by Kupetz (2011), who examined the resources being assembled together by participants in a secondary school CLIL geography classroom in order to explain the phenomenon of tides. Her analysis illustrated the ways in which the explanation of a scientific principle, often conceived of as the activity of an individual student, is accomplished through the collaboration of all participants.

Thus, the explanation was not only brought about by the student who was nominated to do it, but also the teacher, who guided the activity by asking questions, and other students, who treated the explaining student's hesitations as word searches, which they contributed to by providing vocabulary items. What is more, in constructing the explanation, the student assembled together a broad range of other semiotic resources, such as gaze, gestures and facial expressions as well as the overhead projector.

The practice of doing explanations has also been examined in the context of CLIL history lessons. Llinares and Morton (2010), who combined a systemic functional quantitative approach with a CA-oriented investigation, looked at the production of students' explanations of historical events and processes both in the classroom and in research interviews. Following a quantitative analysis that suggested the explanations proffered as part of a research interview were more complex and varied than those done in the classroom, the authors observed differences between the two contexts related to sequential and epistemic aspects of the practice. In the classroom, student's explanations were routinely conducted in and through the second turn of the IRE sequence, and subsequently followed by fairly explicit evaluative tokens in the third turn by the teachers, whereas the interviewers typically reacted with tokens that made agreement and the student's continual relevant, such as 'mm' and 'yes'. Moreover, in the course of doing explanations in interviews, the students would often explicitly orient to their own cognitive state, for example, by using cognitive discourse markers such as 'I think', unlike in the classroom data. These observations on the differences in the way the practice of explaining was conducted in two contexts led the authors to question what (CLIL) students can be taken to 'know' and be able to do, as these matters appear to be profoundly related to the participation framework and institutionality oriented by the students.

Previous research has also indicated that 'content' or 'language' may in some situations be simplistic glosses for the kinds of learning objects which participants work on in interaction by assembling together various kinds of knowledge. This was highlighted by Morton's (2010) study which used an SFL framework to investigate how content and language are integrated in the accomplishment of specific interactional practices in secondary-level history lessons. Morton argued that the notion of genre provides a useful perspective to bringing the linguistic demands of school subjects to explicit focus and thus for rethinking language pedagogy in CLIL. In a data extract he shows (pp. 92-94), the teacher and the students orient to such subject-specific ways of saying things as the teacher, following a student's response, requests the student to produce a more everyday version of his just-prior response that had in fact recycled an expression found in a history text, this time using his 'own words'. Once produced, the teacher then once again reformulates that wording into a more scientific version. The teacher's orientation to the different meanings that these different wordings constitute illustrates how what may be treated as learning objects in the CLIL classroom may not be a simple matter of either linguistic form, as is often the focus of mainstream SLA research, or content fact.

However, such genre-awareness appeared not to be all that frequent among the teachers in Morton's (2010) data, as he observed that it was only some teachers who displayed an awareness of the need for this type of interactional work for language modelling and reformulation.

Similarly, conducting a single-case analysis of teacher-student interaction from the beginning of an English-language immersion class in secondary biology, Pekarek Doehler and Ziegler (2007) problematize a binary division between an orientation to linguistic form and content. The authors argue instead that talk-in-interaction is multi-layered, and show how the participants' orientation to language-related work, such as the pronunciation and choice of scientific terms, is not only embedded in, but also functions as 'stepping-stones' for advancing scientific work (see also Mondada and Pekarek Doehler (2004) for a similar argument in the FL teaching context). On the basis of their observations, Pekarek Doehler and Ziegler (2007) suggest that practices of 'doing science' and 'doing language' are inseparable, so that each practice feeds into the other. Similar observations have later been made by Moore and Dooly (2010), who describe how a group of teacher trainees, in the course of doing a learning activity, work on knowledge items that relate to both language and content, i.e. whether apples in fact 'grow' or 'reproduce (themselves)'. Drawing on their L1 (Catalan), and their knowledge of Spanish, the attention of the group shifts between on the one hand whether the English word 'reproduce' is a reflexive verb, and on the other hand, which one of the two verbs is scientifically a more apt way to describe the growth cycle of apples. These studies point towards a complex relationship between language and content in CLIL teaching.

The relation of everyday and scientific understandings of academic content was also the focus of a study by Evnitskaya and Morton (2011), who used the framework of CoP coupled with a CA analysis to study processes of negotiation of meaning and identity formation in two secondary CLIL science classrooms in Spain. The authors looked at practices through which everyday knowledge becomes reified as linguistic manifestations of subject-specific knowledge of (school) science. In addition to pointing out the key role played by L1, Evnitskaya and Morton noticed differences in the way such work was conducted in different contexts/task types. Knowledge construction could either be organised as a procession from everyday observations elicited from the students towards a scientific theorisation of the focal phenomenon, or the other way around. The authors argued that these different practices for bringing together different domains of knowledge have consequences for the local discourse identities which the students are positioned in. For example, in conducting laboratory experiments, the students were cast in the role of observers and reporters of natural phenomena that was visible through the lens of a microscope, a scientific version of which the teacher then provided. On the other hand, in a class of older students talking genetics, participation involved the juxtaposition of their everyday observations with a scientific explanation, during which the students had the opportunity to construct and critique such scientific claims.

In addition to research on CLIL interaction that examines learning activities using cross-sectional data, there are also some studies that have followed the development of skills or practices over time. Adopting an ethnographic/action research perspective and using video-recorded training lessons as well as various learning assignments, Escobar Urmeneta (2013) investigated the development of a CLIL student teacher over one academic year. The interactional data presented in the study came from two occasions of teacher-led plenary talk, each five months apart. Using the concept of classroom interactional competence as a theoretical backdrop (see Walsh, 2006), Escobar Urmeneta (2013) focused on the way the teacher presented each activity and involved the students. In the analysis, Escobar Urmeneta noticed a decrease in the student teacher's overall use of L1 and argued that she had improved the way she provided her students with opportunities for participation in IRE sequences. As part of her training course, the student teacher also viewed and reflected on her video-recorded lesson data, trying to find aspects of her practice for future development. Thus, in her conclusion, Escobar Urmeneta (2013) argued that such improvements in interactional teaching skills, brought about by the course work and the analysis of teaching practices contributed to the development of teacher autonomy.

Another longitudinal ethnographic analysis of CLIL interaction is provided by Smit (2010), whose study focused on the development of what she termed as interactive explaining in an English-language tertiary classroom. Looking at sequences in which the participants launched explanations of either subject-specific concepts or general language items in data collected over two years, Smit pointed out changes over time in which of the two types of items needs explanation. Moreover, she argued that the participants oriented to knowledge regarding these items differently, so that the explanation of subject-specific lexical items was either the responsibility of the teacher, or such explanations were directed to her for subsequent ratification. On the contrary, the explanation of general language items showed more sensitivity to local interactional roles assumed and cast in the situation, and was routinely done by whoever could do so regardless of their institutional status.

Besides whole-class plenary instruction, other speech-exchange systems of CLIL classrooms have also become under the lens of prior research, although, similarly to L1 classrooms, they are considerably less researched than whole-class interaction. A general finding related to students' group work or situations in which the teacher is not present in CLIL is that the use of L1 tends to represent a more significant resource than in whole-class talk (Dalton-Puffer, 2007, 2011, p. 191). However, rather than being a simple matter of switching to L1 when L2 fails, the use of available languages appears not only to be related to affective and social concerns (see Nikula, 2007b), but is also part of the practical management of language policy in the classroom. Previous research from contexts where more than one language is available to the participants (Amir & Musk, 2013; Bonacina & Gafaranga, 2011; Copp Jinkerson, 2011) suggests that participants may manage their normative orientations towards the medium of

interaction, for example by enforcing a switch from one medium of interaction to another following a perceived breach of a language-use norm. In addition to the teacher, such language-policing practices, which typically remind of and insist upon the use of an institutionally-assigned target language, may also be initiated and conducted by students.

The ways in which peer groups manage knowledge related to academic content and language are still largely uncharted territory in CLIL research. One of the rare studies was conducted by Nikula (2012). Investigating lower secondary level students' peer interaction when formulating history task answers, Nikula (2012) focused on students' orientation to what counts as subject-specific language of history. Whereas explicit references to the word 'history' appeared to be reserved for policing off-task behaviour, the students appeared to have more subtle ways to negotiate answer formulations by replacing everyday words such as 'people' with more scientific lexical choices, e.g. 'population'. Through such interactional work, the students not only attended to particular language forms as something that was required by the subject of history, but it also allowed them to move from everyday towards more formal registers of language. Moreover, the work was by and large guided by specific students who were oriented to as knowledgeable regarding the topic, suggesting that even classroom situations which do not include the teacher may involve orientation to knowledge asymmetries.

Some task types may require forms of participation and ways of using language that can be very different to those involved in whole-class plenary talk. Drawing on data from secondary school CLIL physics, Käätä and Piirainen-Marsh (2013) investigated sequences in which a group of students were doing a practical experiment of balancing two weights on a seesaw, created by a plank that was placed on top of an eraser. Used as an introductory experiment to an activity about torsional moment, the successful completion of the task involved finding an appropriate configuration of the weights, which some of the students were handling while others instructed them how to move the weights on the plank. The authors demonstrated how the semiotic resources that the students used in instructing each other were sensitive to the spatial arrangement of the task, so that in addition to using language, those students standing further away could also rely on gestures pointing at a suitable location for the weights. On the other hand, students positioned closer would occasionally manually guide the hand of the student in charge of manipulating the objects. Käätä and Piirainen-Marsh (2013) argued that such manual guiding is an effective way to correct a problematic course of action in cases when a participant shows insufficient understanding of a prior verbal instruction, which in their data was upgraded by means of manual guiding.

In summary, previous literature on CLIL classroom interaction has tended to focus on whole-class talk as opposed to what goes on in the classroom between students. Moreover, many studies have employed a discourse analytical or pragmatic approach in an investigation of interactional features that may be specific to CLIL and which would thereby be features that make the approach

different from formal language teaching, such as EFL. One such issue relates to the nature of knowledge objects which teachers and students in these classrooms regularly find themselves working on. Although there are limitations to the extent to which general claims can be made on the basis of data that often derive from one or two classrooms and is achieved through single case analyses, previous research has shed light on how CLIL participants routinely need to manage knowledge objects that relate to the academic subject under study, as opposed to FL classrooms in which what counts as learning is often the linguistic meaning or form. For example, the previously mentioned observations by Nikula (2007a) on the 'tightness' of IRFs across CLIL and EFL settings may be related to the degree to which teachers' questions target a knowledge item that can be graded in a binary fashion as either right or wrong, or alternatively, whether an evaluation of the correctness of the response is more likely to receive a response asking for the course of reasoning behind that answer. Furthermore, when it comes to the sequential resources used by participants to realise lessons, there may be considerable common ground between different approaches to language and content teaching. This was evident in the doctoral study by Kääntä (2010), which employed a conversation analytic methodology with a focus on embodied actions to investigate teacher turn-allocation and repair practices in IRE sequences in CLIL and EFL lessons. In reporting her findings, she mentions no systematic differences between the two contexts in the sequence organisation of the two practices. It is for these reasons in particular that an enquiry of what makes CLIL interaction different from FL, or mainstream L1, teaching may find itself to be interwoven with other contextual features such as (subject-)specific pedagogies, task types and teacher question types to name but a few.

3 DATA AND METHOD

This chapter outlines the research questions pursued in this study, as well as describes the data and the methodological framework which are employed in the investigation. In addition to providing a description of the research setting and the participants, the chapter also reports the procedures and methods used in data collection, transcription and analysis. Finally, the chapter concludes with a brief discussion about ethical issues related to interactional data.

3.1 Research questions

The purpose of this study is to advance understanding of social aspects of knowledge construction and language learning in classroom interaction by investigating ways in which students take initiative for learning during classroom activities. As the previous literature review has indicated, few studies to date have addressed the role of student-initiated practices that aim at supporting their learning when interacting with the teacher, as opposed to responding to teacher initiations in the confines of the three-part teaching exchange (IRE). There is an even greater gap in the literature related to how this may be done in peer groups in situations where the teacher is not present, let alone what the normative orientations to knowledge in these situations may look like. This study is thus an attempt at a systematic investigation of student-initiated practices for managing lack of knowledge in the social interaction of content and language integrated (CLIL) classrooms. Motivated by these research gaps, this study seeks to answer the following overarching research question:

How do students identify knowledge objects that they need assistance with and work on them in the course of accomplishing learning activities in CLIL classroom, and, what do these objects and their treatment imply for the conceptualisation of language, content and learning in CLIL instruction?

Besides aiming at advancing research-based understanding of the organisation(s) of classroom interaction, this overarching research question relates this study to a broader theoretical discussion in CLIL research on how the two key learning objectives, language and content, are brought together in practical classroom activities. What this study thus aims to contribute to that discussion is an empirical investigation of the kinds of aspects of the instruction that students may find problematic in the CLIL classroom and a description of their practices for addressing those problems. This overarching question is therefore pursued through the following three, more specific empirical questions:

- 1) How and in what kinds of activity contexts do students indicate lack of knowledge regarding some aspect of the on-going instruction or the task in first pair part (FPP) positioned turns?
- 2) How are these indications of lack of knowledge treated in subsequent interaction?
 - i. What is the interactional organisation of sequences initiated by these indications like?
 - ii. What kinds of interactional tasks does participation in these sequences involve?
- 3) What kinds of opportunities for learning do these sequences offer?

Of these research questions, (1) investigates the methods and semiotic resources employed by students in making lack of knowledge an interactional phenomenon. By 'lack of knowledge' is here meant a positioning regarding some knowledge object that invokes a K-epistemic status (see Heritage, 2012a), which the student's turn establishes or is treated as having established.⁹ Because the focus of this study is on exploring students' ways and possibilities to initiate interactions, the collection of indications of lack of knowledge to be examined is narrowed down to turns that are positioned as first pair parts (FPP) of a sequence. This means that research question (1) excludes, for example, students' turns that convey lack of knowledge in response to a teacher question (but see Sert, 2011). As previous CA research has established, the sequential position of an action is an important factor that speakers use to determine what action the specific configuration of resources being employed is doing (see e.g. Schegloff & Sacks, 1973). This participant orientation to sequence organisation provides for a systematic possibility that indications of lack of knowledge may be taken as quite different interactional objects depending on whether they are done as an initiating or as a responsive action. In research question (1), the inclusion of 'instruction' is used to exclude sequences in which students may address lack of knowledge in what may be termed as 'off-task' talk (see e.g. Markee, 2005), which may deal with a variety of non-classroom concerns. Although it may be difficult to point out an exact boundary between 'off-task' and

⁹ The expression 'knowledge gap' will also be used in a synonymous manner as 'lack of knowledge' to refer to such a K-epistemic positioning in the context of this study (see also Jakonen & Morton, 2013),

'on-task', and furthermore, the methods which students may use to manage knowledge in both domains may in fact be surprisingly similar, the decision to narrow this study down to concern knowledge related to instructional matter is justified with its focus on the relationship between practices of knowledge and learning in the classroom. Besides these concerns, question (1) asks in what kinds of activity contexts, such as whole-class or peer interaction, the focal FPP turns occur.

Research question (2) examines the nature of activity sequences which begin with an FPP indication of lack of knowledge. This is done by investigating the sequence organisation of the activities (2i) and the practical interactional tasks that are involved in the construction of these activities (2ii). Furthermore, the latter sub-question addresses the resources through which these tasks are accomplished.

Lastly, research question (3) considers the significance of the focal activities which are examined through questions (1) and (2) for learning. Here, any reference to the nature of possible learning objects (such as 'language') is deliberately omitted, and instead, this is treated as an empirical question. As was argued in the literature review, classrooms are places in which knowledge and learning are relevant activities and processes to the participants; research question (3) therefore asks in what ways, if any, they may be related matters for the participants in the focal activities. For this, the role of the focal sequences for students' learning activities and task accomplishment are examined both in and beyond the immediate sequential context. As opposed to research questions (1) and (2), which are mainly investigated using as data video-recorded interactions, the analysis related to research question (3) makes additional use of students' tasks, classroom texts and other pedagogic artefacts.

3.2 Methodology

This study addresses the research questions outlined in the previous section from a point of departure offered by ethnomethodological conversation analysis (CA) that is sensitive to the multimodal nature of social action. CA has not only emerged as an often used research method in applied linguistics but is also a research field of its own. The field represents a distinct, qualitative and micro-analytical approach to the study of social action, its underlying structures, orderliness and methods for its maintenance. CA's intellectual roots can be traced back to University of California of 1960s, in the sociology of Erving Goffman and Harold Garfinkel. Their approach to make everyday social life a systematic topic of study had a profound influence on two graduate students, Harvey Sacks and Emanuel Schegloff, who would later have a foundational role in establishing CA as a research field (for a more in-depth account of the origins of CA, see Heritage, 2008; Psathas, 1995; ten Have, 2007).

Rejecting the notion of social action as the causal product of internalised norms and rules (see Heritage, 1995), CA describes instead the practical meth-

ods of reasoning that speakers employ to make their actions understandable and recognisable. Such methods are essentially tacit and make up a body of knowledge that includes presuppositions, assumptions and methods of inference (Heritage, 2008). Their investigation necessitates that the researcher trace the *emic* logic¹⁰ and normative orientations of these methods which the participants rely on as they engage in naturally occurring (i.e. not experimental or quasi-experimental) social activities. As opposed to for example ethnographic research that approaches the participant's perspective to activities or practices they engage in through the use of interview data, in CA the *emic* perspective is also understood to include the immediate interactional environment of such activities and practices. This, as Seedhouse (2006, p. 166) explains, means that for example post-hoc participant interviews would not offer access to such an important aspect of the activity context (although interviews do lend themselves to an analysis of *interview* practices).

CA makes at least three fundamental assumptions regarding human interaction: (1) it is ordered and structurally organised; (2) speakers' contributions are 'doubly contextual', i.e. context-shaped and context-renewing; and (3) no conversational detail should be dismissed a priori as irrelevant in order to avoid theoretical idealisation (see Heritage, 1984b, pp. 241-244; also Psathas, 1995, pp. 2-3). These are invoked in what constitutes a central analytical resource in CA for obtaining the *emic* perspective to social actions and activities - in this study those related to the management of knowledge - which is to examine how turns-at-talk are received and responded to by the co-participant(s). This 'next-turn proof procedure' (Hutchby & Wooffitt, 2008, pp. 13-15; see Sacks et al., 1974, pp. 728-729) not only provides the analyst access to what a turn is understood as having been about but it also - first and foremost - provides opportunities to the participants to display, monitor and locally correct their understanding of the actions conducted through the previous turn, i.e. sustain intersubjectivity (Heritage, 1984b, pp. 254-260). It is in this sense that occasions and resources for understanding are provided by the very 'warp and weft' of the organisation of conversation (Schegloff, 1992, p. 1299). In the context of this study, instead of locating instances of various knowledge-related actions such as 'requesting information' on the basis of an etically defined *a priori* codification of e.g. certain morphosyntactic features indexing epistemic stance, the use of next-turn proof procedure allows this particular category of action to be grounded in participants' local sense-making and their practical understandings of when 'not knowing' is a relevant concern for them.

The approach taken in this study may be characterised as 'applied' conversation analysis rather than 'basic' CA in at least two different ways. As described by Antaki (2011), the first of these deals with using the analytical lens of CA in an attempt to re-specify a concern (i.e. 'knowing' and in particular 'learning') of another discipline, which in this case might be seen as applied linguistics.

¹⁰ This follows the distinction between *emic*, or system-internal, and *etic*, or system-external, viewpoints that Kenneth Pike (1967, p. 37) originally coined in the context of studying behaviour.

tics, or general educational research. Applying CA thus allows these two concerns to be seen from a social and participant-oriented viewpoint, which may provide new insights that complement the already existing, perhaps more intramental understandings of 'knowing' and 'learning'. The second sense in which this study may be seen as applied CA is the focus on how a particular institution, in this case the classroom, carries its business through interaction. As described by Antaki (2011), such institutional CA (e.g. Arminen, 2005; Drew & Heritage, 1992) is not so much concerned with resolving problematic aspects of the institution, such as learning outcomes judged as poor, but is more interested in how talk is used for doing the routine work of the institution. This also includes a focus on how institutional identities and roles are made relevant and constructed through talk. In this study, these focal areas of inquiry are indeed relevant insofar as it is concerned with understanding the routine interactional means that students have at their disposal for bringing about 'learning', which can be seen as a fundamental institutional goal of formal education (see e.g. Seedhouse, 2004, p. 183).

Moreover, the methodological approach employed in this study treats human action and interaction as something that in addition to talk is routinely constructed through assembling together other semiotic resources and sign systems, such as gaze, gesture, pointing, and material objects available in the physical environment (see e.g. Goodwin, 2000, 2013; Kääntä & Haddington, 2011; Streeck, Goodwin & LeBaron, 2011). Although traditional and established CA methodology does not in principle disregard the use of semiotic resources beyond the vocal modality from the analysis, it may be fair to say that these have only fairly recently begun receiving systematic attention in CA, with few early exceptions, such as the work by Charles Goodwin (1979, 1980, 1981). As Stivers and Sidnell (2005, p. 16) point out, this has much to do with the development and increased availability of video technology, which has enabled the investigation of how multiple modalities are employed in interaction. Conversely, the foundational work in CA heavily relied on the investigation of telephone conversations (e.g. Schegloff & Sacks, 1973; Schegloff, 1968), in which the modalities available to participants drastically differ from face-to-face interaction. As opposed to some multimodal research, the focus of this study is, however, not so much in investigating instances of how specific embodied conduct, such as pointing, may be used for knowledge-relevant actions. Rather, the focus of the study is grounded in the action sequences targeted by the research questions, but it is recognised that their construction may occur through the assembling together of various resources, of which embodied conduct may be one.

Finally, the methodological principle of CA to rely on the local sequential context for examining the co-construction of action has sometimes been criticised as offering a restricted viewpoint on the analysis of social life. The target of the criticism is often explicated as an inability to give enough consideration to macro-level contextual variables such as social class, power relations and gender (Billig, 1999a; Wetherell, 1998), or the lack of use of other ethnographic information to complement findings obtained by a close analysis of interaction

(e.g. Maynard, 2006). The overall approach adopted in this study regarding claims on the effect of context to participants' discourse corresponds to that expressed by Schegloff (1997a, p. 183): that these claims need to be substantiated by showing the relevance of the particular contextual variable to the participants. In line with this, the analyses conducted in subsequent chapters make use of various classroom texts and tasks insofar as they are oriented to by the classroom members. As it is sometimes argued in the context of investigations of interactional practices in complex institutional settings (e.g. surgery clinics), CA is usefully complemented by ethnographic knowledge on the nature of the practical tasks in order to understand the interactional practices, which may not be immediately accessible to a layperson. Classrooms share similar characteristics, in that access to the physical artefacts and the pedagogic tasks which are under the participants' attention can often be a crucial prerequisite to an understanding of the social actions and activities they accomplish. The next section will describe the collection of these artefacts and other data in more detail.

3.3 Research context and procedures for gathering data

The data used in this study are on the one hand 15 consecutive, naturally-occurring, video-recorded and later transcribed history lessons taught in English over a period of two months to 14-15-year-old, native Finnish-speaking students at a secondary school in Western Finland. Additionally, the data includes all the pedagogic tasks and texts used in the classroom during the recorded lessons. The recordings were carried out as a joint initiative by the Centre for Applied Language Studies (CALs) and the Department of Languages, University of Jyväskylä, Finland. These 15 consecutive, topically continuous history lessons were taught to the same class by an experienced native Finnish teacher, and were part of the school's bilingual (EN-FI) programme. The data were collected between December 2010 and February 2011 by two researchers, one of whom was the present author.

The school

The focal secondary school receives their students from a nearby primary school that provides English-language immersion teaching. However, the focal school itself does not follow any explicit immersion programme, but instead teaches relatively flexibly some curricular content in English, depending on factors such as the willingness and competences of current staff members. The amount of subject teaching that is provided through English has gradually decreased, so that at the time of data collection, the teacher who participated in this study was the only subject teacher teaching through English. Besides her, the school nevertheless attempted to cater for the language needs of the former immersion students with two native English-speaking EFL teachers, with

whom the history teacher had some degree of co-operation for the purposes of planning teaching.

English history – elective course offered to students in the bilingual programme

As part of its English-language programme, the school offered an elective course called *English history* to the students who had attended the immersion programme at primary school. This course, consisting of 30 lessons, had been taught by the same teacher for several years with some modifications made over the years. The course was part of elective studies (even if it was evidently intended to the students in the English-language programme of whom all took part), which meant that its implementation was not particularly closely regulated by the curriculum. Consequently, the teacher had a considerable level of freedom regarding course design. Although topically the course covered chronologically the history of England and Britain from roughly the year 1066 to the early 20th century, according to the teacher, an equally important focus was on teaching students some English culture, social conventions and humour through history, and doing so in an engaging manner. This she accounted for with the need for the students to learn about the culture and traditions underlying English language, not only the language in isolation.

The teaching materials used had been collected from various sources by the teacher over the years. No published textbook was used, but the teacher had instead photocopied and given the students a course book - a compiled leaflet including various history texts and tasks that had been collected online as well as written publications. In addition to more 'official' renditions of British history, the course material was often supplemented by texts and comic strips from the book series titled *Horrible Histories*, written by Terry Deary, whom the teacher had received a permission to use the material for teaching purposes. Moreover, video clips were used as well.

In the school year of data collection, the complete 30 lessons of English history were divided in two academic terms, the first and the third, with a two-month break in between. When the school was initially contacted, the first term was already underway, which meant that the 15 recorded lessons used as data in this study represent the second half of the elective course. During the first term, the class had covered events between year 1066 and the Middle Ages, which was where they picked up when the third term began. This two-month break between the first and the second half of the course appeared to have made the two parts of the course somewhat discontinuous to the participants. Explicit references to and revision of the topics taught in the first term appeared rare during the third term, suggesting that the unrecorded part of the course was not a resource that was drawn on for the management of knowledge and learning during the second part. Moreover, covering history chronologically involves the organisation of curricular topics such as the Tudors, or the Victorians as topics of study that are distinct from each other, with two to three hours being a routine length of time allocated to any specific historical period. In such

circumstances, continuity in the classroom is more often accomplished within the activities making up a single topic rather than between topics.

Participants

The focal teacher of this study is an experienced, native Finnish speaker fluent in English, who at the time of data collection taught history and religious education in English at the school. During her professional career, she has also lived in the UK and the US. The students, altogether 19 in the class, are also native Finnish speakers who had attended English-medium immersion from kindergarten through the age of 12 when they left primary school. When the data was collected, the students were in Year 8 of the nine-year Finnish comprehensive education system, their ages being 14 or 15.

Classroom activities and organisation

The recorded classroom activities routinely involved the use of two languages, English, the language of instruction, and Finnish, the participants' first language. Additionally, the students would sometimes use other language codes as resources for entertaining each other, much in the same way as the students described by Rampton (2006, pp. 135–212) used German in their performances of *Deutsch*. However, these instances were relatively rare, whereas English and Finnish were systematically used to carry out teaching and learning relevant activities, yet in slightly different roles. Although the teacher would often engage in maintaining a normative requirement to her students to speak English (Amir & Musk, 2013; see also Copp Jinkerson, 2011), students often used Finnish alongside English in their group talk (for an investigation of functions for L1 use in CLIL classrooms, see Nikula, 2007b). In whole-class interaction – as well as in response to audible Finnish-language group talk – the English-only norm was, however, routinely oriented to by all participants and regularly enforced by the teacher.

During lessons, the students were seated in five permanent groups¹¹ of three or four students at each table, working there on both independent and group tasks as well as participating in teacher-led learning activities (see Figure 1 for the classroom floor plan). Besides providing a stable configuration for group work, these groups formed a kind of a default participation framework (Goffman, 1981, pp. 124–159) for students to interact during the accomplishment of independent tasks or when commenting on teacher talk. Such a physical arrangement of the classroom provided resources for the emergence of lessons as interactional events which have a multi-layered organisation that frequently involves talk and other conduct (in groups) parallel to a whole-class activity (see also Lehtimaja, 2012). This property also means that the database of 15 lessons – which itself may be considered as an adequate database for a CA

¹¹ Apart from one student, who switched his group midway through the course.

study on classroom interaction (cf. Seedhouse, 2004, pp. 84–88) - is greatly expanded through the possibility for parallel activities.

Sometimes the class would also convene in a circle for special activities, such as reporting previous group work to others. In addition to the blackboard, the classroom also had a computer and a data projector, which were all recurrently employed for teaching purposes.

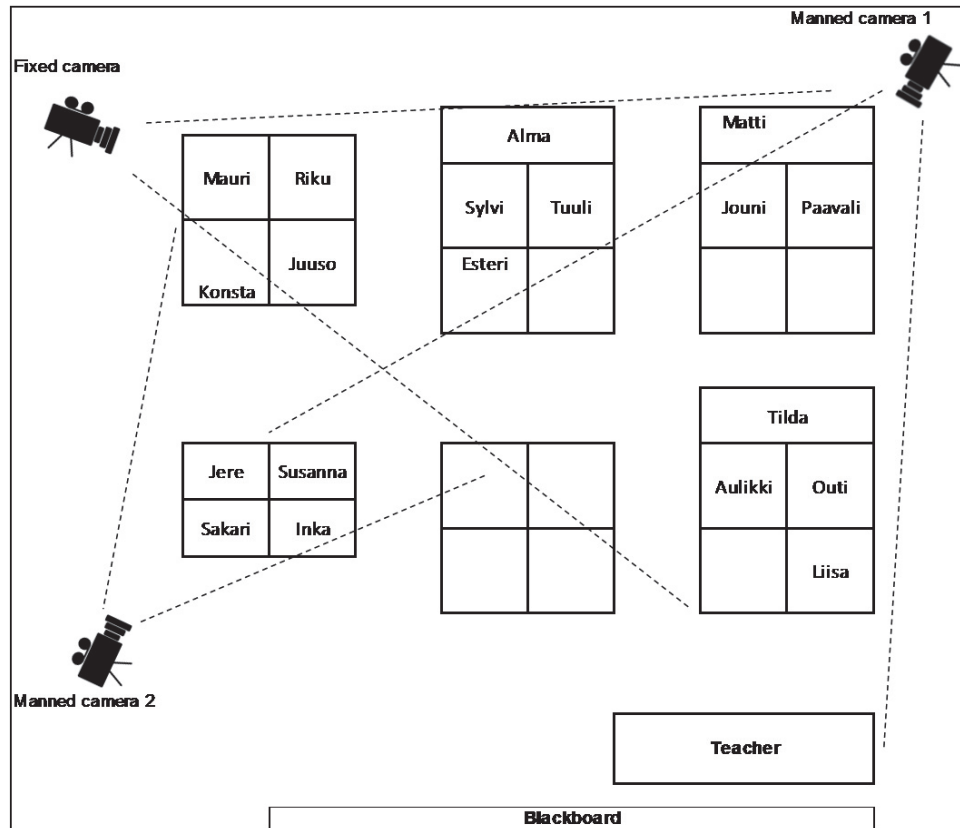


Figure 1. Classroom floor plan with camera angles (names of the students are pseudonyms)

Recording procedures

In order to record interaction in the classroom as comprehensively as possible yet unobtrusively, three classroom cameras were used together with voice recorders at every student group. As can be seen in Figure 1, the cameras were placed in the room so that all areas of the classroom as well as all students would be in the viewfinder of at least one camera at any given time, with some tables being fairly consistently filmed by two cameras. Of the three cameras, two were mounted on tripods and manned by the researchers, so that camera (1), located at the back of the class, captured the teacher's actions when she was positioned in the front half of the classroom, and additionally followed the stu-

dent group nearby during group activities. The other operated camera (2) was positioned at the side of the classroom and followed the students as well as the teacher's occasional movements at the back of the class. Lastly, the third and the only unmanned camera was mounted on top of a cupboard at the back corner of the classroom, from where it provided an overview of a large part of the classroom.

In addition to video and audio recording the lessons, all classroom texts and tasks completed by students were collected as electronic copies. This was communicated to students and done at a convenient time for classroom activities, such as when the students handed their work in for marking. Having access to such classroom artefacts allows the analysis to reach a more robust understanding of the practical tasks which the participants are actually accomplishing when they sustain mutual focus on these artefacts during task activities. Furthermore, students' written products are themselves occasions of language use, and are therefore relevant for an analysis of learning in situ (research question 3).

Post-recording video editing and initial transcription

In order to access students' group talk, which is often relatively quiet on camera footage in situations where there is a lot of background noise, the raw video footage was combined with each group's audio recordings using professional video editing software. This process entailed the creation of lesson videos for each of the five groups with their own audio track and the video from a selected camera source. In addition to lesson videos focusing on student groups, a video was made showing teacher-led whole-class interaction. These whole-class lesson videos, 84 altogether¹², were then transcribed verbatim¹³, using a reduced version of the standard CA transcription (see Jefferson, 2004a) and adding embodied actions where they appear to be treated as relevant for the unfolding interaction. First, the 15 videos showing whole-class talk were transcribed, which were then used as the basis for the transcription of group interactions. Transcribing the videos in this order not only saved time, but as indicated by previous research findings (e.g. Koole, 2007; Lehtimaja, 2012), students' peer talk is often occasioned by and organised in reference to the events and activities of whole-class interaction.

The multi-layered organisation of talk and other conduct in the classroom extends to inside groups, not only to the borderline between teacher talk and group talk. In situations that involve at least four speakers, conversation can sometimes split into two topically separate dyads through a process called 'schisming' (Egbert, 1997; see also Sacks et al., 1974), the representation of which in a written transcript can be problematic. The same phenomenon can be

¹² This total number of lesson videos is made up of the whole-class videos (15) and activities that occurred in five student groups (69) simultaneously. On some lessons, whole groups were absent.

¹³ In addition to the present author, the transcription was conducted by the other researcher participating in the data collection as well as a research assistant.

observed in classrooms, so that even if students who are seated around the same table constitute some form of a default participation framework, it does not mean all talk and action at a table is directed to all students - nor for that matter is every turn taken by the teacher observably followed by the students (see also Ford, 1999). Although CA methodology in principle sees the a priori exclusion of aspects of the interactional environment from a transcript of talk somewhat problematic (see e.g. Psathas, 1995), a decision was made not to represent in transcripts talk that comes from students outside the focal group unless the speakers in the group in question somehow treats those contributions as relevant to their interaction. This may happen in situations in which students overhear something and topicalise it in their group by commenting on it in a turn addressed to their group members. Such selectivity is justified on the one hand with the need to keep the transcripts readable, but also so that the representation of the sequence organisation of a group conversation would not be obscured by talk from outside that conversation. On the other hand, even students who are engaged in a group conversation sometimes follow the events of whole-class talk, and make it clear e.g. by occasionally shifting the topic of their group conversation to that of teacher talk. Thus, in such cases of parallel activities where whole-class talk appears to be monitored and oriented to in group talk, both conversations have been represented in separate columns of the transcript, so that the temporal placement of any turn is indicated by its vertical placement not only in relation to other turns in the conversation it is part of but also that of the turns in the other conversation (see also Lehtimaja, 2012, pp. 174-211). In any case, all audible talk in the classroom is represented in at least one lesson transcript (i.e. that of a single group's or that of whole-class talk).

3.4 Constructing the analytical collection

The first round of transcription involved a theoretically open examination of the lesson videos, something which in CA is often referred to as unmotivated looking (see e.g. Psathas, 1995, p. 45; Schegloff, 1996a, pp. 172-174; ten Have, 2007, pp. 119-122). During this phase, the lesson videos were viewed several times, in connection to which notes were taken on a variety of interactional phenomena that might be of possible analytical interest. Although the degree to which such an initial examination of materials in reality is 'free' from theoretical presuppositions may well be questioned (e.g. Billig, 1999b, pp. 573-575), the data was initially approached with a more general interest in discovering practices related to the business of classrooms rather than a purpose to search for occurrences of some pre-identified phenomenon in the data. This phase, which continued after a verbatim transcription of all lesson videos was completed, was done using Transana, software that allows visual data to be viewed alongside a transcript as well as other possible notes. During this time, several collections of video clips of various interactional phenomena were constructed and the granularity of their transcripts refined to allow the textual representation of an-

alytical observations related to practices of knowledge management in the classroom. Through such early collections, the focal phenomenon of this study was gradually specified to sequences through which students indicate lack of knowledge related to some instructional matter and enlist the help of other participant(s) in order to pursue that knowledge. Towards the end of the analytical process, all lesson videos were once again systematically viewed in order to create a final collection of sequences.

Besides refining the transcripts of the final collection to follow a standard Jeffersonian (2004a) notation that has been supplemented with a notation system for embodied actions (Appendix 1), some of the data extracts shown in this study also include pencil sketches prepared with image editing software from video screenshots in order to illustrate key embodied actions that constitute the focal sequences. Moreover, Finnish-language turns or turn-constructional units have been idiomatically translated into English to serve a wider readership.

The final collection includes sequences in which a speaker indicates K-epistemic status (Heritage, 2012a) in a sequence-initial position regarding a knowledge object and, by doing so, invites a display of that knowledge. Often treated as 'information requests' in CA and linguistics, in the data such turns frequently initiate a side sequence (Jefferson, 1972) to some on-going activity – e.g. whole-class instruction, independent seat work, or 'group' work – which is terminated once the knowledge gap is deemed to have been resolved and/or the epistemic status of addressed recipient(s) is determined. Altogether, the collection consists of 468 sequences, which offers the possibility to conduct quantitative analyses and inferences to support the qualitative analysis of individual cases. However, apart from referring to certain phenomena as 'frequent' or 'rare' or the like, aspects of the data will not be represented in quantitative form in this study (but see Schegloff, 1993 for a discussion on the role of quantification in CA). Going beyond that level of granularity of quantification is expected to not yield enough payoffs for what is essentially a case study in one classroom context and which therefore relies on matters other than frequency in claiming generalizability.

That knowledge is a relevant concern across a broad range of social actions can be seen in the fact that the final collection includes sequences that have in the previous literature been conceptualised as various different conversational phenomena. Whereas a large proportion of the sequences re-engage lapsed talk during task work (see e.g. Szymanski, 1999), on some occasions they bear similarities to other organisations of conversation, most notably some forms of other-initiated repair. As has been established in previous literature (Schegloff et al., 1977; Schegloff, 1992, 1997b, 2000), repair is a conversational organisation that can be deployed to address trouble of various sorts related to talk, its hearing and understanding, the progressivity of the on-going sequence, as well as operating as pre-rejections, i.e. 'harbingers' of dispreferred turns (Schegloff, 2007, pp. 102–106). Thus, the collection includes instances that can be characterised as other-initiated repair when the practice is being used to address lack of knowledge, such as is the case when a student initiates a sequence

with a peer to address her understanding of the on-going teacher talk¹⁴ or invites the recipient to participate in a word search. Conversely, the collection excludes other-initiated repair that the participants treat as addressing problems of hearing, even if they may on occasion be difficult to distinguish from problems of understanding, as for example Lilja (2010, pp. 70–73) and Haakana (2011) have pointed out.¹⁵

As the previous discussion indicates, the final analytical collection includes sequences whose initial turns are first pair-parts, but which at the same time are contingent on, or occasioned by, some previous action. That may be e.g. the teacher's instruction or an overheard student turn, the understanding or meaning of which the focal K- indicating turns request from their recipient. On the other hand, the collection excludes indications of lack of knowledge conveyed prior to some other conversational activity, such as information requests used to initiating a pre-sequence to prepare the grounds for assessing some referent, unless lack of knowledge is a concern for the participants in the ensuing sequence, such as when speakers aim to establish the degree of knowledgeable-ness of the recipient.

Although sometimes the boundary between turns that address a knowledge gap and those that are concerned with accomplishing other actions such as doing disagreement may be fuzzy (and even contested by the participants), an attempt has been made in building the collection to rely on participants' understandings of what the turns are about, as displayed in their subsequent responses (i.e. 'next-turn proof procedure'). Furthermore, there is no watertight boundary between a request for information and confirmation, or requests to share a task answer; all such turns position the speaker as unknowing (K-) and their addressed recipient as a 'possible K+' regarding some knowledge object although the exact gradient of these positionings may vary.

¹⁴ The aforementioned property of lessons as multi-layered (and multi-person) events provides the students with the possibility to initiate sequences with each other as 'byplay' (Goffman, 1981), parallel to on-going plenary teaching. Thus, they have the possibility to address problematic aspects of teacher talk through a form of repair previously described as 'other selection' (see Bolden, 2011, 2012), which involves the selection of a speaker other than the utterer of the trouble source to provide the repair outcome (see also Chapter 4).

¹⁵ A regularly used method for distinguishing whether speakers use repair to address a problem of hearing or understanding a turn is to look at what kind of a repair solution is treated as sufficient. For example, by repeating the trouble source verbatim, a speaker orients to the repair initiation as having been concerned with hearing (see Couper-Kuhlen, 1992, pp. 349–350; Lilja, 2010, p. 71). However, the situation is complicated, as there is some evidence suggesting that when others initiate repair that deals with 'serious' concerns such as understanding or acceptability problems, they often begin by addressing the trouble as having to do with problems in hearing, that is, cognitively and socially a 'lesser' concern (Svennevig, 2008).

3.5 Ethical considerations

Before beginning the classroom video recordings, permission for recording the lessons was secured from the local board of education, the school's head teacher, as well the teacher. In addition to this, the informed consent of all participants in the classroom to participate in the research was requested and received in written form. On behalf of the students, who were at the time minors, informed consent was sought and received from their legal guardians (Appendix 2). Moreover, the form also detailed the manner in which the recorded data would be stored and used by the researchers, as well as how it could be represented in scientific publications. The parents were offered the choice to request that their children remain unidentifiable in publicly shown video clips or written transcripts of data. The form also gave the parents the possibility to withdraw their consent to use the data showing their child at any given time. When the students will have reached the age of majority, this right to a complete withdrawal from the study and the possibility to request unidentifiability will transfer to them.

Complete unidentifiability is likely to be a too ambitious goal in research that relies on the close examination of videos and still images and makes data available for the analytical consideration of the reader. After all, students' peers, parents, relatives as well as other teachers at the school may be able to recognise those persons represented in the transcripts of this study even if these transcripts would not include any visual representations. However, an effort has been made to protect the identities of the students and the teacher as much as possible from the recognition of others. For the transcripts displayed in this study, this involves giving all students and the teacher pseudonyms, removing all references to the school's name and location, and using slightly blurred pencil sketches instead of screenshots of photographic quality to illustrate participants' embodied actions. Moreover, the facial features of those students whose consent form requests them to remain unidentifiable have been even further blurred to protect them from recognition.

The purpose of maintaining unidentifiability is to protect the participants from any possible detrimental effect of the research to them. This could happen, for example, if a student or his behaviour is characterised in a research report as somehow insufficient or unsatisfactory - either identified as such by the author or conveyed by the student's own actions - and it has an effect on how the teachers at the school treat or assess him. This is a concern that cannot be entirely avoided no matter how the data is presented. However, it is substantially mitigated by the fact that the students who are represented in the data are no longer taught by the same teachers nor are they even studying at the same school. Moreover, the interactions shown in the transcripts are examples of routine school work and do not contain any highly sensitive information.

Besides maintaining anonymity, issues related to how recording affects the participants and their activities needs to be taken into consideration, not

only from the point of view of research ethics but also in relation to the methodological focus on 'naturally occurring' interactions in CA research. When recording the lessons, the two researchers who were operating the cameras attempted to work as inconspicuously as possible, so as not to disturb the progress of the lesson and students' task work. Consequently, most of the time the participants do not observably orient to the presence of the cameras and the researchers in any way, although on some occasions they do become the topic of conversation or are in some other manner attended to. Such occasions are, however, few and far between. Whether or not the presence of cameras has an effect on any individual's behaviour is a complex issue that can perhaps never be entirely resolved (Gordon, 2012; Lomax & Casey, 1998; Monahan & Fisher, 2010); yet the overall impression of the recorded lessons is that they very much represent mundane, everyday school work that is typical to the specific cultural context.

4 THE MANAGEMENT OF STUDENT-INITIATED KNOWLEDGE GAPS IN BILINGUAL CLASSROOM INTERACTION

4.1 Introduction

The purpose of this chapter is to describe the management of knowledge in bilingual classroom context by analysing interactional sequences which begin with an indication of a knowledge gap related to classroom activities or tasks. The present investigation thus focuses on one particular, yet routinely employed students' practice: sequences which begin when a student positions themselves as having a K-epistemic status regarding some referent or state of affairs and invites other(s) to display their knowledge regarding the targeted information – that is, makes a knowledge gap interactionally visible and resolvable. More specifically, the chapter addresses research questions (1) and (2) by investigating the specific methods for building such K-positioning into the FPP turns, their interactional environments of occurrence, and the organisation of sequences they initiate as well as the kinds of interactional tasks that these sequences involve.

Before proceeding to tackle the research questions, a simple yet typical example of the kinds of sequences that are included in the data collection is in order. This will better illustrate the aspects that make up research questions (1) and (2), and which will be investigated more systematically in the upcoming sections.

An example of student-initiated treatment of lack of knowledge

Indications of a knowledge gap presented by a student in bilingual classroom interaction may target knowledge of a variety of kind, ranging from language or content related problems to those associated with task procedures. Consider the following extract, which illustrates how lack of knowledge concerning the

course book page needed for the next activity is quickly made into an interactional item, which may subsequently be resolved.

Extract 1. What page?



01 Susanna BROWSES HER COURSE TEXT
 02 -> what page
 {SHIFTS GAZE TO INKA'S PAPERS
 03 (six[teen])
 {GAZE BACK TO OWN COURSE TEXT
 04 Inka [seventeen]
 05 T seventeen
 06 (0.7)
 07 Susanna -> where are the page numbers
 {INKA TAKES A SPOONFUL OF TEA
 08 Inka up
 {SHIFTS GAZE AND LEANS CLOSER TO SUSANNA
 09 Susanna there (.) yes



The sequence takes place as the students have just been given a task which involves the use of their course text to answer written questions. In order to begin the task, they will therefore need to know the relevant pages in the course text which covers the task topic, something which the teacher (T) has in fact earlier announced. It may be that this announcement has either escaped Susanna's attention, or she has forgotten the page numbers; nevertheless, as the group members are taking out their course materials, Susanna suspends her main activity of examining the course book and initiates a sequence to resolve this particular knowledge gap. She does this by requesting information at line 2 through a turn that in terms of the resources of the language employs an elliptical interrogative design ('what page') to indicate a K- epistemic position. Note, however, how Susanna simultaneously also brings Inka's handling of her own course text into the parties' mutual focus by means of a gaze shift (see transcript image). What this action accomplishes is both a further elaboration of the verbal part of the request, i.e. by identifying the referent whose pages are being asked, and the singling out of the speaker who is due to provide a response to the request. By assembling together these linguistic (interrogative morphosyntax), embodied (gaze) and sequential (doing a recognisably 'first' action) resources, Susanna positions herself as having a K- epistemic position as regards the correct page number, and in contrast, orients to Inka as a possible knower (K+) of

this information. Thus, what appears as relatively minimal verbal production is sufficient, together with other resources, to do complex epistemic positioning work for the practical purposes of the situation.

By adding a candidate answer ('sixteen') at line 3, Susanna slightly modifies her epistemic position 'on the fly' from a less knowing into a more knowing, one that claims some kind of knowledge of the page range she should be looking at (in fact, it is possible that she sees this in Inka's course book at line 2). As Inka joins the activity at line 4, she complies with Susanna's positioning of her as someone who knows the page number by providing it to Susanna. As it turns out, the teacher, who has thus far been instructing the class about the task, appears to overhear Susanna's request and answers it at line 5. However, apart from being quickly glanced at by Inka, she is not oriented to by the speakers here, suggesting the students are concerned to resolve this particular knowledge gap on their own.

After lack of knowledge regarding the correct page number has been provided, Susanna continues the help-seeking activity by delivering a new, related information request at line 7 following a 0.7 second silence. Keeping her gaze on her course text, Susanna inquires about something which is a prerequisite to benefitting from the page number announcement, i.e. where the page numbers are marked in the course material. Were Susanna to treat the validity of Inka's prior answer somehow problematic, the relevant sequential location to indicate it would be at this stage, meaning that the production of the follow-up question (as a question type not contesting the prior answer) at line 7 implicitly accepts Inka's response. By this stage, the focus of the participants has changed from Inka's to Susanna's course book. Similar to the first adjacency pair, again Inka is cast into a K+ epistemic positioning, which she accepts by providing the missing information at line 8. At the same time, Inka shifts her gaze to Susanna's leaflet, as if to check that she can find the numbers on the page. At line 9, Susanna acknowledges the receipt of the information by claiming that she has 'noticed' the page number ('there') and further produces an agreement token ('yes') to explicitly accept the validity of the knowledge having been offered to her. This double-barrelled 'third' turn closes the sequence (see sequence-closing thirds in Schegloff, 2007) and allows the participants to continue the pedagogic task. In terms of knowledge, the sequence is closed because the indicated 'information imbalance' (see Heritage, 2012b, p. 32), which is the warrant for conducting the sequence has been levelled and equally importantly, the levelling has been acknowledged by Susanna.

These two successive and topically related information request-answer adjacency pairs involve some recurrently observed elements of how students address lack of knowledge in the data for this study. Firstly, as illustrated in Extract 1, the focal sequences are organised around information request - answer adjacency pairs, which may include possible insertions, as well as pre- and post-expansions (cf. Schegloff, 2007). These provide students with sequential resources for conducting a range of knowledge-relevant actions, such as dis-

playing and claiming knowing or not knowing, as well as accepting or rejecting the validity of given answers.

Secondly, students who make a knowledge gap visible frequently select specific individuals to provide the missing knowledge (as opposed to addressing it to 'anybody'). This may be done by using embodied means, such as gaze, body orientation, and gesture or verbal address terms such as person reference to address the indication of lack of knowledge to someone (for methods of speaker-selection in everyday conversation, see Lerner, 2003). What sometimes makes speaker-selection and the establishment of reciprocity complicated in the classroom is that for example independent learning tasks are done in situations in which students are co-present yet working on their own tasks. Thus, securing reciprocity may often involve quite considerable interactional work to negotiate the suspension of other on-going activities before the work for resolving the knowledge gap may begin.

Third, speakers draw on semiotic resources, including the linguistic resources offered by the two available languages, English and Finnish (even if not used in Extract 1), as well as embodied and material resources to resolve knowledge gaps. Besides the management of parties' knowledgeability regarding the targeted information, a key task which these resources are used for in the course of resolving a knowledge gap is the identification of what exactly it is that is not known. In the classroom, knowledge objects are frequently represented in written form in pedagogic artefacts such as course books, task sheets, etc. It is therefore hardly surprising that the very same artefacts are routinely employed as resources for the formulation of knowledge gaps and the production of knowledge that these sequences pursue.

Finally, the sequences in which students initiate interactions to address lack of knowledge represent students' methods for taking the initiative with their own learning activities. Doing this can involve the management of quite complex epistemic relations and participation frameworks, as they are not only accomplished through side sequences (Jefferson, 1972) in the course of some group activities but also, as in Extract 1, as student 'byplay' (Goffman, 1981, pp. 133–134) subordinated to whole-class talk. Curiously enough, an overwhelming majority of the knowledge gaps in the data are addressed to peers as opposed to the teacher, who may be seen as the institutionally-assigned default individual with primary epistemic status in the classroom. On the other hand, between students the 'consensus about who has primary access' (Heritage, 2012a, p. 3) to the targeted information may be more open to debate. Thus in situations when students do not address the teacher, different methods may be at play for determining whether the recipient may be a likely knower and therefore a helpful co-participant in solving the knowledge gap.

This chapter continues with an investigation of different sequential environments in which indications of lack of knowledge appear in the data collection and describing the kinds of interactional tasks which have been alluded to here and which go into the accomplishment of these sequences (sections 4.2 and 4.3 respectively). These tasks provide the structure for the rest of the chapter, so

that section 4.4 examines how recipients are recruited to resolve knowledge gaps and how the searches are co-ordinated with other on-going activities. This is followed with an examination of the resources used to formulating knowledge objects and displaying 'unknowing' epistemic status towards them (4.5). The final analytical section (4.6) investigates practices related to answer production and validation, such as how answers may be accounted for, accepted as well as contested.

4.2 Interactional environments of knowledge gaps

4.2.1 Introduction

This (4.2) and the following (4.3) sections look at sequential aspects in treating lack of knowledge. In this section, the interactional contexts and task environments where FPP turns indicating lack of knowledge occur are examined in an attempt to shed light on what kinds of classroom activities and interactional practices appear to occasion knowledge gaps.

In conversation analytic research, notions such as the sequential 'context' or 'environment' of a given phenomenon generally refer to those actions which are conducted in and through the immediately prior and the following turns, as well as to the focal turn's sequential positioning (Kasper, 2009b; ten Have, 1990). This is related to one of CA's basic assumption that talk and, more generally, actions are doubly contextual, i.e. 'context-shaped' and 'context-renewing' (see Heritage, 1984b, p. 242), meaning that they do not only rely on the immediately preceding actions to render them understandable but at the same time they renew the context for some next projected action and its interpretation. Participants' reliance on the immediate sequential environment not only provides them the means to sustain intersubjectivity by monitoring how their actions are responded to, but it also allows them to see and hear the non-occurrence of certain items, such as answers to questions as relevant, or as Schegloff (1968, p. 1083) puts it, 'officially absent'.

4.2.2 Whole-class activities

Knowledge gaps are frequently made relevant during activities which involve and expect some form of whole-class participation from students, such as receiving and understanding task instructions, answering the teacher's questions, and the like. In such situations, the knowledge objects pursued are typically related to unknown words or expressions in teacher talk, as well as task procedures and instructions. Many such problems, had they been presented in everyday interaction, would be resolvable through other-initiated repair (see e.g. Schegloff et al., 1977); however, a clear majority of knowledge gaps in the data for this study are addressed to fellow students instead of the teacher. As opposed to soliciting the missing knowledge from the teacher by means of repair

initiations, students overwhelmingly construct such activities as ‘byplay’ (Bannink & Van Dam, 2013; Ekström, 2013; Goffman, 1981, pp. 133–134) between peers, subordinate to the teacher-led whole-class talk. This places certain contingencies on resolving the gap.

Extract 2 illustrates how classroom proceedings can become treated as missing knowledge which is retrieved by soliciting help from a peer. The sequence occurs during a transition from one activity to another, which the teacher has begun to introduce in the extract. Before doing so, she has collected the students’ exercise books for marking. However, as the teacher’s task-announcing makes it inferable that the course text, a self-compiled leaflet, will be needed in the next activity, one student formulates a problem by pointing out that she has in fact previously returned her text together with the exercise book to the teacher. It is this slightly unexpected turn in the progression of the activity which paves way to the knowledge gap regarding which text is being referred to that another student, Konsta, indicates to a peer.

Extract 2. What text?

```

01 T           page twenty-five. (.) t- it starts actually
02           page twenty-four with Stuarts? (0.8)
              {TUULI GLANCES AT ESTERI
03           and page twenty-five tells you (.)
04           why you have your (.) teja (.) in the afternoon.
              {TUULI'S GAZE 'SWEEPS' HER GROUP MEMBERS
05 Tuuli      [TEACHER'S NAME]
06 T           yeah
07 Tuuli      I put them my:-
              {'DRAWS' A BOX WITH FINGER ON THE TABLE
08           -> that text
              {POINTS AT THE TEACHER
09 T           oh can you (.) get it here (.) err- (0.9)
10           ha- has somebody else put the (.) text here.
11           (-- ) come please (.) okay? (.)
12           SOME STUDENTS GO TO GET THEIR EXERCISE BOOKS
13           (2.5)
14 Konsta    -> ai what text
              oh what text
15           (0.8)
16 Riku      -> (no) tän teksti
              (well) this text
              {NODS TOWARDS THE TEXT ON THE TABLE
17           (2.2)
18 Konsta    what?
19           (0.9)
20           -> aa [oo this
              oh oh this
21 Riku      [this text
              {POINTS AT THE TEXT
22 Konsta    >aa yeah joo joo †oijoijoi†
              oh yeah yeah yeah †oh dear oh dear

```

As the teacher is introducing a new study topic (‘the Stuarts’), she refers to page numbers on three occasions over lines 1-2. Shortly after the second occasion

(‘page twenty-four’), Tuuli begins to orient to her group members as if to check their reactions to this announcement. At first, she quickly shifts her gaze to Esteri, and, as the teacher’s task introduction proceeds further, Tuuli’s gaze moves through all the students at her table, thus constructing an action that projects some sort of trouble in the progression of the activity. Indeed, as the teacher’s turn comes to a possible conclusion at the end of line 4, signalled by the final intonation contour and the syntactic completion of the unit, Tuuli pitches for a turn. Having been allocated a turn, she announces at lines 7-8 that she returned her course text copy to the teacher when she was collecting the students’ exercise books at the end of the previous task. Note how Tuuli formulates the announcement (‘I put them my, that text’) using not only talk but also embodied resources, as she identifies the referent in the word search by delineating the shape of the course text and pointing towards its location in the classroom. Formulating a problem related to the task progression as a telling that offers one’s personal circumstances is a way to defer to the teacher the decision-making regarding its consequences to the progression of the lesson. As it turns out, the teacher assumes this role of a ‘task master’ by suspending her task introduction and checking whether the same circumstances apply to other students (line 10), whom she invites to come and get their exercise books from her desk to ensure that an important prerequisite of the task is in order (line 11).

Tuuli’s announcement is the first occasion where an explicit reference to the course text is provided, being described as ‘that text’ by Tuuli and subsequently as ‘the text’ by the teacher in her invitation to other students. Shortly after some students have left their seats, Konsta, who sits in an adjacent group to that of Tuuli, indicates lack of knowledge of the object under discussion in the previous sequence of whole-class talk at line 14. He prefaces his turn with the Finnish discourse particle ‘ai’ (‘oh’; see VISK §1028) to locate the referent whose identity is being requested as being occasioned by the previous course of events. Konsta’s use of interrogative word to precede the referent (‘what text’) does not so much treat problematic some abstract, decontextualized meaning of the word ‘text’, but rather the way definiteness has previously been conveyed through a demonstrative and pointing gesture (Tuuli) and the definite article (teacher). In fact, this may be because Konsta did not attend visually to the side sequence following Tuuli’s announcement, which may have left her embodied actions unobserved.¹⁶

As it turns out, Konsta and Riku begin to resolve the knowledge gap in different languages, as can be seen in the way Konsta requests information (line 14) and later initiates repair (line 18) in English on Riku’s Finnish-language, K+ response, which he accompanies with a nod towards the text on the table in front of him. Konsta, however, acknowledges Riku’s identification of the text at line 20, before the latter begins in overlap to repair his knowing response by

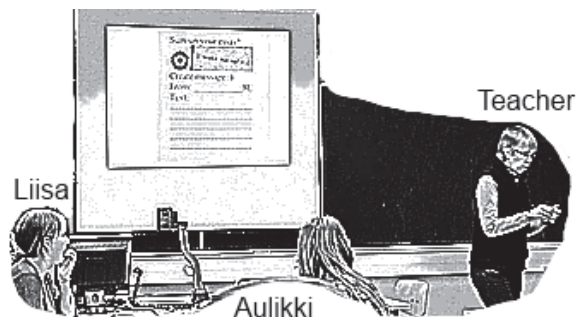
¹⁶ This is supported by the observation that Konsta attended to objects on his desk, and did not orient to what was going on in the whole-class discourse during Tuuli’s announcement. Unfortunately, no framegrab can be shown of this sequence due to anonymity concerns.

switching the code to English at line 21. Konsta's acknowledgement first uses a change-of-state token 'aa' (cf. "oh" in English, see Heritage, 1984a) to claim that something has 'just now' been understood (Bolden, 2006; Koivisto, 2014; Lehtimaja, 2012, pp. 118-121), and then demonstrates what that something is.

In summary, Extract 2 shows how a somewhat unexpected turn in the course of a whole-class task-instruction sequence occasions a knowledge gap which is resolved in peer interaction. In this case, the requested information concerned an unclear referent ('that text'/'the text'), the identification of which was required to act according to the teacher directive, i.e., to go and get the course text back if it had earlier been collected by the teacher. In this sense the knowledge gap was directly consequential to the kind of participation that is expected from the students in the classroom, meaning such knowledge could not have been 'let pass' (cf. Firth, 1996). The way Konsta pursued the knowledge object in peer interaction rather than by addressing the teacher orients to the student group as a 'first point of contact' for addressing problematic aspects of the instruction. This is further underscored by the conduct of the student (in the other group) who first brought the problem of the collected course texts to the teacher's attention (Tuuli); by letting her gaze to 'survey' her peers before taking a turn in the whole-class talk, she made herself available to possible sequence-initiation by her group members.

Besides the import of whole-class talk, any aspect of the pedagogic material, such as a word or an expression therein may become treated as a knowledge gap. Consider Extract 3, which comes from a similar task-instruction sequence as Extract 2. This time, the teacher is announcing an essay summary task which is designed to take the form of an SMS message written on a prepared post-it note, which has been displayed to students on the overhead projector during the instruction sequence. Both the note and the teacher's turn when she is beginning to hand out the notes contain the expression 'to sum up', the meaning of which Aulikki requests from her group member Liisa as the instruction sequence is drawing to an end.

Extract 3. Sum up your essay



- 01 T [BEGINS HANDING OUT PAPER SLIPS TO STUDENTS]
 02 so you can write it down here. (.)
 03 you remember what you wrote about. (.)
 04 -> sum up your essay. (.) here?
 05 Paavali I find just four (.) of those words
 {AULIKKI SHIFTS GAZE FROM OHP TO LIISA
 06 Aulikki -> <mi:kä> sum up your essay | T we:ll then it's- (.)
 <wh:at> sum up your essay |

07 -> mitä se meinaa | you j's (.) mark the four
 what does it/she mean |
08 Liisa -> {SHRUGS, HANDS AT THE SIDE,
 PALMS UP
09 Aulikki GLANCES AT ANOTHER GROUP
10 ((12 LINES OMITTED, DURING WHICH TEACHER GOES ROUND THE
 CLASS HANDING OUT THE NOTES AND INSTRUCTING THE TASK))
11 Liisa -> °mitää sinne pitää [kirjo-°
 °what do you have to write there-°
 {GAZE TO AULIKKI
12 T [okay
 {COMES TO GIRLS' DESK
13 Aulikki -> what's ↑summing means
14 T oKAY(.) now (0.6) then we-
15 GIVES A & L PAPER SLIPS
16 Aulikki here is two
17 HANDS A SLIP TO TEACHER
18 T yah (.) (thank you)
19 TAKES THE SLIP
20 (2.0)
21 T ↑HEY (.) EVERYONE. (1.8)
22 everyone (1.2)
23 -> Aulikki was asking a ↑very important question. (1.1)
24 -> <what (.) does> (0.8) <summing up> mean. (0.6)
25 -> when I ask you to sum up ↑what do I ask you to do.
26 Tuuli RAISES HAND
27 T Tuuli
28 Tuuli write the main points
29 T yeah write the ↑main points, (.)
30 uh the (.) essential the key the core.
31 the- the- (.) ↑you have written a hundred words.
32 now you have to condense it



As the teacher begins to go round the classroom (starting from the furthest end to the group by Aulikki and Liisa) in order to hand out the post-it notes which will be needed in the summary task, Aulikki detaches herself from whole-class talk by shifting her gaze from the overhead projector to Liisa (line 5) and indicates lack of knowledge regarding the meaning of the phrase 'sum up your essay' at lines 6-7. The knowledge gap made visible by Aulikki concerns the phrase that makes up the title of the post-it note, which is shown on the OHP (see image), and which the teacher has mentioned a few times during the instruction sequence, most recently at line 4. Aulikki's Finnish-language request for the meaning of the expression is constructed through a multi-unit turn, the first turn construction unit (TCU) of which is an elliptical phrase consisting of an [interrogative pronoun + trouble item] format. The second unit identifies the missing knowledge as related to the *meaning* of the phrase in the task instruction. In overlap with this TCU, Liisa already begins a response shrug that in effect claims no knowledge (line 8).

Following the embodied display of K-epistemic status regarding the meaning of 'sum up' by Liisa, who is the only student in the group besides Aulikki, the search is discontinued as the two students follow the teacher going round the classroom and providing further instruction for the task (omitted from the transcript). However, as the teacher's delivery round takes her to the

two girls' table, the search for the meaning of 'sum up' is resumed. This happens as Liisa appears to be getting back to discussing the trouble related to the execution of the task at line 11, but cuts off her softly spoken turn addressed to Aulikki just as the teacher arrives next to the group. By suspending her turn, Liisa orients to the priority of the note-giving activity conducted by the teacher. The teacher's availability, verbally signalled with the token 'okay' (line 12), provides an opportunity to consult her epistemic resources, an occasion which Aulikki immediately grabs. Compared to her earlier indication of lack of knowledge (at lines 6-7), this time her request at line 13 is formulated as a 'lesser' problem, one that involves the meaning of a word ('summing') rather than that of the complete task title.

Note how the teacher receives Aulikki's query with an emphatically produced 'okay' at line 14 and continues the handing out of post-it notes to the two girls, who are the last students to receive their notes. Interestingly, 'okay' is neither a K+ positioned knowledge display nor a claim of K- epistemic status; rather, it is a token of recognition that conveys that Aulikki's request has been noted and will be (knowledgeably) addressed once the current activity is completed. This is evident to the participants, as can be seen in the fact that even if some seven seconds, a lifetime in conversation, pass between the receipt of Aulikki's knowledge gap and its introduction to the whole class (line 21), neither Aulikki nor Liisa pursue a response from the teacher. Instead, all parties take her K+ epistemic status as a settled matter and knowledge of the meaning of 'summing' as something that will be provided in due course. As it turns out, the teacher's decision to introduce the knowledge gap into whole-class interaction and resolve it by soliciting a display of knowing (Koole, 2010) from the class over lines 21-32 embodies an orientation to the relevance of individual problems to the whole cohort. Furthermore, by evaluating and ratifying the subsequent display received from the class (Tuuli), the teacher once again enacts her epistemic authority regarding the meaning of 'sum up'.

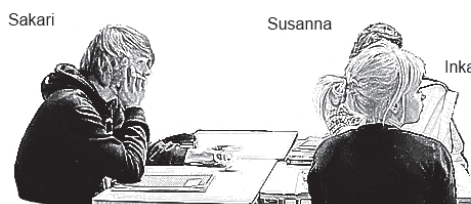
The way the knowledge gap is resolved in Extract 3 bears similarities to Extract 2. Firstly, on both occasions the timing of the indication of lack of knowledge is sensitive to the on-going whole-class activity insofar as both are accomplished at a point in which the just-prior course of action has implicated a shift in the kind of participation that is expected from the students, and moreover, the teacher's turn has come to a completion. In Extract 2, Konsta requests what 'the text' refers to at a point in the lesson when knowledge thereof is needed in order to decide whether or not one needs to go to the teacher along with other students to pick up one's text. In a slightly different vein, in Extract 3, knowledge of the meaning of 'summing up' is required to be able to start working on the task. In Extract 3, this precision in the timing of requesting information can be seen quite clearly as the phrase 'Sum up your essay' had already been visible and available in the form of the post-it note on the OHP during task-instruction for about one minute before Aulikki eventually asked its meaning. This suggests that she could have done so already during the teacher's in-

struction sequence, but oriented to the end of task-instruction as the appropriate time and place for such concerns.

Secondly, even though the teacher is an available option for resolving both knowledge gaps, not only by virtue of being the speaker who had most recently used the trouble items, but also by being indeed oriented to as a K+ individual in the classroom, both information requests are first addressed to a group member. This is a common observation in the data, as has already been mentioned.

Even knowledge gaps which are not directly consequential to the accomplishment of some next action in the learning activity tend to be presented and dealt with in a way that displays sensitivity to the main on-going activity in the classroom. Extract 4 describes how lack of knowledge concerning a word meaning is addressed in group parallel to whole-class talk. In the sequence, the teacher is announcing a somewhat unusual homework of baking Yorkshire puddings. Part of the task-instruction sequence involves viewing a video recipe, which the teacher is about to begin to display using a projector. Similarly to Extract 3, what becomes treated as an unknown item ('pudding') is both visible in the title of the paused video screen and used by the teacher as she announces the video and the related homework.

Extract 4. Yorkshire pudding



01 T	which is err (.) to make (.) err Yorkshire puddings	
02	for next †time (.) o:r (.) maybe time after that.	
03	the (.) reason (well I'll) explain and-	
	{SITS DOWN BY THE COMPUTER	
04	†we see it first.	
05 Sakari	-> mikä helkkari (.)	T the film.
	<i>what the heck (.)</i>	
06	-> mikä o pudding	a:nd err (.)
	<i>what's a pudding</i>	
07 Sakari	SHIFTS GAZE TO SUSANNA	that will make=
08	-> >mikä o pudding<	=a noise but the
	<i>>what's a pudding<</i>	
09	GLANCES AT TEACHER	lady here unfortunately
		has as-
10 Susanna	-> se on niinku vanukas	(.)
	<i>it's like a custard</i>	
11 Sakari	GAZE TO VIDEO, SLACKJAW FACE	horribly loud voice
		as I have.
12	†VANU:	she will
	†CUSTA	
13 Inka	†kato	tell you (.)
	†look	
	{GLANCES AT SUSANNA	
14 T	how to make Yorkshire puddings.	
15 Sakari	>we can< (.) buy them (.) t- (.) shop.	
	{FIDGETS IN HIS CHAIR	
16 T	SHAKES HEAD AND TURNS ON THE VIDEO	



Similarly to previous extracts, the timing of Sakari's indication of a knowledge gap concerning 'pudding', addressed to his group members at lines 5-6, is coordinated with the main activity of announcing the video. It is presented as the teacher's announcement of the video has syntactically, prosodically (final intonation contour) and pragmatically come to a 'possible completion' (cf. Schegloff, 1996b) at line 4, something which has furthermore been projected by her having sat down in front of the computer. The newly emerged position in between what appears as a complete announcement turn and the showing of a video clip, which has been announced to begin shortly, is treated by Sakari as an appropriate slot for addressing a knowledge gap in his group. Sakari indicates the knowledge gap in Finnish through a somewhat similar two-unit turn as Aulikki in Extract 3. He first employs an [interrogative pronoun + mild expletive] construction at line 5 to convey unexpectedness and amazement (see also VISK §1725), and then uses a 'What is X' request format (see also section 4.5.2) to construct the knowledge gap as a problem that relates to what the word 'pudding' refers to (line 6). As it turns out, the teacher ends up continuing her announcement from line 6 onwards, with which Sakari now has to coordinate his request.

As no response is forthcoming, Sakari pursues an answer (Pomerantz, 1984b; Stivers & Rossano, 2010a) by redoing the request at line 8 and using gaze to address it to Susanna. The pursuit is marked prosodically, through sped-up speech rate, as an upgraded version of the 'What is X' question employed previously. Susanna's eventual answer at line 10 adopts a somewhat hedged K+ stance by using the qualifier 'niinku' ('like') before giving a Finnish-language translation ('vanukas') of pudding that in fact only refers to sweet custardy puddings, and thus excludes baked savoury goods such as Yorkshire puddings.

Sakari's reaction to Susanna's somewhat hesitant knowledge display is a full-blown amazement. He turns his gaze towards the screen and adopts a facial expression that for the lack of a better word could be described as 'slack-jawed' or 'stunned' (see image), keeping his mouth open and cheeks raised, and partly repeats the answer given by Susanna at line 12. This repeat is a modified version of the original and emphatically produced: it has higher pitch, more stress and is delivered with a prominent lip movement. Although the exact interactional meaning of this action is, due to overlapping courses of action, left slightly ambiguous (that is, whether the turn is treating Susanna's answer as surprising, contesting it, or doing something related), it is fairly safe to say that Sakari's conduct claims some sort of a mismatch between Susanna's answer and the screen, which the repeat and the facial display of amazement directed at the screen assemble together. Up until Sakari's utterance, the screen has displayed an image of an oven, meaning there is no immediate visual discrepancy between Susanna's answer and the screen (i.e. that any 'pudding' on the screen would be observably non-conforming to the category of 'pudding-as-custard').

Further evidence for Sakari's repeat of the answer as not constituting an open 'attack' on the validity of the answer in this stage comes from the fact that a) it is not responded to by Susanna as such (although other courses of action

may intervene in this, as Inka directs the group's attention to the video at line 13), b) Sakari does not continue with any contesting action, but instead c) appears to use the category made evident by the answer (i.e. that 'pudding' is 'vanukas', or a sweet custard dessert) in his turn addressed to the teacher at line 15 in which he asks if 'Yorkshire puddings' can be bought from the shop.¹⁷

Despite being interactionally complex, Extract 4 demonstrates how a (culturally fairly specific) lexical item which is available to the participants in the classroom environment can become treated as a knowledge gap even when its immediate knowing is not a prerequisite to participation in the next activity, at least not to the same degree as knowing what 'summing up' means in Extract 3. However, similarly to the previous extracts, the gap is resolved in a manner and at a sequential location which displays sensitivity to the on-going main activity.

The next extract (5) further illustrates how knowledge which is not directly consequential to task-accomplishment can be addressed in group interaction. It shows how a knowledge gap may also be discovered in teacher's turn-at-talk which does not instruct or otherwise address a pedagogic task, suggesting that opportunities for students to work on knowledge objects are not limited to interactions that construct the 'core' institutional business. The extract comes from a lesson-beginning phase during which the teacher is going through and revising work rotas for the class' fund-raising project. Shortly before the extract, the teacher has already once mixed up two students, Tilda and Susanna, the latter of whom is due to work on the same day. As the teacher repeats the mistake and jokingly sanctions herself for it, Tilda inquires Aulikki what the teacher just said.

Extract 5. Wakey wakey

```

01 T          err Wednesday and instead of Riku to- (.)
02          today it's Tilda. (.)
03 Tilda          {LIFTS GAZE FROM TEXT TO TEACHER
04 T          at six o'clock
05 Tilda          ↑mitäh
                   ↑what
06 Liisa          it's Susan[na
07 T          [<Su|sanna> (.) sorry sorry hehehe (.)
08          -> wakey wakey °rise 'n shine°
09 Tilda          °okeihh°
                   °okeyhh°
10 Aulikki?      hhh
11 Tilda          -> °mitä se sano hh°
                   °what did she say°
12          (4.0)
13 Aulikki        siis millo
                   like when
14 Tilda          siis äske
                   like just now
15          (1.1)

```

¹⁷ As it later turns out, after seeing the video, Sakari does in fact remind Susanna of the discrepancy between the type of 'pudding' baked on the video and the one Susanna claimed it to be. As such, doing so is one way in which speakers may hold their co-conversant accountable for knowing something.

16 Aulikki -> no siis joku wakey wakey (--)
well like something like wakey wakey (--)
 17 Tilda ei (vaa --) jotai sitä enne
no (but --) something before that
 18 Aulikki I'm sorry
 19 (1.2)
 20 Tilda jotai se jä- (.) >sitä enne<
something (after tha-) (.) >before that<
 21 (1.6)
 22 Aulikki että sää nyt tänään
that it's you today
 23 Tilda (---)
 24 CONTINUES WRITING

As the teacher announces that Tilda is due to be working 'today', a state of affairs which has already been established as incorrect a couple of minutes earlier, Tilda initiates repair at line 5 by means of a prosodically salient (high pitch), 'open' class repair initiator (Drew, 1997) which treats the whole of the teacher's turn as somehow problematic. This problem relates to the confusion in students' names, as becomes apparent by the next actions of the speakers. First, Tilda's group member Liisa rectifies the teacher's announcement without any mitigation by providing the name of the student who really is due 'today' (line 6). Moreover, the teacher receives these turns by acknowledging that she has made a mistake and playfully sanctions herself through the use of expression 'wakey wakey rise an' shine' (lines 7-8). Besides self-sanctioning, such a reference to the early hour constructs an account for the mistake as having been related to inattention rather than incompetence or a problem of memory.

When the identity of the student who is due to work is clarified and the teacher continues to go through the work rota with the class (not shown in the transcript), Tilda disengages herself from the whole-class talk and indicates lack of knowledge related to the teacher's previous account at line 11. Similarly to the previous extracts in this section, by selecting a group member (Aulikki) as the recipient, the student identifying a knowledge gap treats whole-class talk as the main activity in the room and group interaction as the appropriate locus to resolve problems that may emerge from some aspect of the main activity. As it turns out, Aulikki's first solution at line 16 to address Tilda's knowledge gap is to report the final TCU in the teacher's account ('something like wakey wakey'), suggesting she treats it as a possible source of confusion, whether by virtue of having been the just-prior¹⁸ element of talk in the teacher's turn or by representing a possibly problematic linguistic item.

As Aulikki's first offer is not accepted as the knowledge gap, the two students go over the teacher's previous account and announcement one TCU at a time in a reversed chronological order, only to find none are accepted by Tilda (except possibly for the final suggestion, that Tilda was due 'today', to which Tilda's answer is inaudible). Organising the identification of knowledge gap

¹⁸ In addition to a participant-orientation to the sequentially previous action or turn component as the 'context' for any subsequent action, providing the just-prior element is here quite clearly enacted in Tilda's clarification that narrows the problem down to what the teacher said 'just now' ('äske') at line 14.

this way through the deployment of 'chained' offer-accept/decline sequences suggests Tilda is after one specific linguistic item rather than some global import of the teacher's turn – that she made a mistake, apologised and accounted for it – which after all was made overt by the teacher (lines 6-7) and acknowledged by Tilda herself (line 8). Although left somewhat unclear by the participants, this item could be the expression 'wakey wakey rise 'n shine', which is the immediately preceding TCU in teacher talk before Tilda initiates the sequence at line 10, even if she does not accept it when later suggested by Aulikki.

In summary, even knowledge that clearly lies within the teacher's epistemic territory is routinely requested from peers. As opposed to the sequences in the previous extracts that were initiated when a possible pause in teacher talk and or a transition in the activity occurred, Tilda requests information while teacher talk is still on-going. However, as Tilda's slot in the students' work rota was sorted out over lines 1-7 and the teacher continued to go through other students, following this activity was no longer directly consequential to Tilda (cf. Jones & Thornborrow, 2004, p. 405). This in turn liberated her to address the knowledge gap in group talk with Aulikki.

Taken together, the data fragments displayed in this section illustrate that the management of knowledge gaps in student groups during, and targeting information in, whole-class talk contribute towards similar ends as the organisation of repair in everyday conversation. That is, they are frequently used to resolve trouble related to problems of hearing and understanding (cf. Schegloff et al., 1977), as well as the relevance of some talk. The difference lies in who is invited to resolve the knowledge gap / trouble item: in repair in everyday conversation between two parties, this can be done by 'self' or 'other', whereas situations where more than two parties are present offer the possibility to organise such conversational practices in ways that involve different kinds of participation roles. Thus, in multi-party situations a form of repair previously described as 'other selection' (see Bolden 2011; Bolden 2012), which involves the invitation of a speaker other than the utterer of the trouble source to repair it, offers speakers a systematic possibility to address problematic aspects of talk and other conduct to a third person. In classroom contexts, such third party is typically a group member, who may be invited to provide information on a domain of knowledge to which the teacher would quite clearly have primary epistemic access by virtue of being the party whose talk contains what becomes treated as the trouble source. In Extract 2, the requested information concerned an unclear referent ('text'), in 3, the use of a phrasal verb ('to sum up') in task instruction turned out to be problematic, and in Extract 4, a sequence was initiated in order to resolve a knowledge gap related to the cultural meaning of a specific concept, namely how a 'Yorkshire pudding' may differ from a 'normal pudding'. Extract 5 showed how knowledge gaps may be found in turns of teacher talk and language which are neither offered as 'learning items' nor project a subsequent action from the students.

4.2.3 Gaps in preparation for or during IRE sequences

So far the extracts have described sequential environments in which students resolve knowledge gaps which have been occasioned by previous teacher talk, pedagogic material or the next course of action that is expected from the students. They have therefore all involved one student requesting information which is in some way present in the environment, and possibly needed for accomplishing a future task (Extract 5 being perhaps the clearest exception). Sometimes, however, knowledge may be needed immediately, as is the case in situations where the student indicating lack of knowledge has been allocated a turn to display that knowledge as part of an IRE sequence. In cases where a knowing answer to a teacher's question is for some reason not obtainable, students have the possibility to claim insufficient knowledge in response to the teacher, as described by Sert (2011). When seated in groups, however, they also have the option to seek information through similar byplay with a peer that has been described in the previous section, but within the contingencies of the ongoing IRE sequence. The following extracts (6-8) describe some ways in which students who are nominated to answer may indicate lack of knowledge and mobilise a peer-produced K+ positioned response, which can then be used to respond to the teacher.

In Extract 6, Alma has been nominated to translate a list of words from English to Finnish one at a time after the teacher announces each translatable word.



Extract 6. As soon as

- 01 T err- when I say a wo:rd, (.)
 02 translate it in (.) Finnish please.
 {ALMA SHIFTS GAZE TO HER TASK SHEET
 {TUULI SHIFTS GAZE TO HER TASK SHEET
- 03 Alma °m[mm°
 04 T [uh after?
 05 (1.0) / ALMA'S GAZE FROM TASK SHEET TO TEACHER;
 TUULI'S GAZE TO ALMA
- 06 Alma jälkeen,
 07 (0.6) / TUULI'S GAZE FROM ALMA TO TASK SHEET
- 08 T afterwards,
 09 (1.0)
- 10 Alma jälkeempäin,
 11 (0.7)
- 12 T as soon as,
 13 -> (1.7)
- 14 Alma -> °mikä se o(li)°
 °what (wa)s it°
 {TUULI SHIFTS GAZE TO ALMA
- 15 Tuuli -> °niin pian kuin [mahdollista°
 °as soon as possible°



16 T [or give an >example<,
 17 (.)
 18 -> Tuuli helps and others help you.
 {TUULI SHIFTS GAZE TO TEACHER
 19 Tuuli niin pian kuin mahdollista
 20 T ↑yeah, before,
 21 Alma ennen,
 {TUULI'S GAZE FROM TEACHER TO TASK SHEET

Allocating an answer turn to Alma for the duration of several successive questions (not shown in the extract) entails a turn-taking organisation whereby a 'correct' answer is signalled simply by the teacher's proceeding to the next item on the list without further turn-allocation procedures for each individual item. This constitutes the unproblematic progression of the activity, as observed in the way the teacher and Alma provide and ratify Finnish translations for the words 'after' and 'afterwards' over lines 4-11. However, following the teacher's announcement of 'as soon as' at line 12, the speakership does not transfer within the same sort of time frame as after each previous translatable item (lines 5, 7, 9, 11). Instead, after a longer silence than usual, Alma initiates talk with Tuuli, who has throughout the activity been monitoring Alma's task-accomplishment (see lines 2, 5, 7). In doing this, Alma marks her movement from the whole-class activity to a small group 'floor' (see Jones & Thornborrow, 2004) with a lowered volume and gaze shift, as she whispers an interrogatively formatted information request at line 14 querying the translation for 'as soon as'. As opposed to joining the whole-class activity, Tuuli orients to maintaining the same floor by whispering a K+ positioned, knowing answer to Alma at line 15 for her to then relay to the teacher. The teacher, however, notices this course of events and verbalises it at line 18. Interestingly, a provision of a verbal description of what can be seen to already take place (i.e. that Tuuli is indeed already providing help to Alma) orients to help-giving as a permissible activity (unlike Alma's whispering of the request in the first place). Having now been 'revealed', Tuuli then moves to the whole-class floor and addresses her turn to the teacher by means of louder volume and gaze shift (line 19).

All in all, Extract 6 demonstrates how a nominated-to-answer student may move between whole-class and group floors in the contingencies of a response turn (IRE) to request from her peer information that is needed in her response. It also shows how the orientations by the participants to the permissibility of such movements may differ. By providing permission for retrieving missing knowledge from non-nominated students, the teacher orients to the primacy of establishing 'correct answers' for the activity over assessing one student's degree of knowledgeability.

Extract 7 involves a similar translation activity, however, this time the turn-allocation is organised as a round robin (see also Mortensen & Hazel, 2011), during which Inka, facing away from the teacher, is nominated at line 1 to translate the word 'clearly'.

Extract 7. Clearly

01 T clearly, (.) Inka
 02 Inka {GAZE TO TEXT
 03 -> (2.5) Sakari
 04 Sakari GAZE TO INKA
 05 -> ɸ^opuhtaasti^oɸ
 ɸ^ocleanly^oɸ
 -> {INKA LIFTS GAZE TO SAKARI
 06 Jere [°^oclear°° (('FINNISH' PRONUNCIATION))
 07 T [clearly
 08 Sakari ɸ^opuhtaasti^oɸ
 ɸ^ocleanly^oɸ
 09 Susanna °(onko se ----)°
 °(is it ----)°
 {INKA GAZE TO SUSANNA
 {SUSANNA GAZE TO INKA
 10 T (-[-)
 11 Susanna -> [se on selvästi
 it's clearly
 12 Inka mmh
 13 TURNS TO FACE THE TEACHER
 14 selvästi.
 15 T †mmh (.) †selvästi it's=
 16 Sakari =ɸ^opuhtaasti^oɸ hehe
 ɸ^ocleanly^oɸ hehe
 17 STUDENTS LAUGH

Note how Inka's response turn, which the teacher's prompt to provide a translation has made conditionally relevant (see e.g. Schegloff, 1968), is even more delayed than Alma's in Extract 6. In reference to conditional relevance, participants hear the approximately 2.5 second silence at line 3 to 'belong' to Inka, and are able to draw their conclusions regarding possible reasons for this delay. By proceeding to offer a translation ('puhtaasti') at line 5, Sakari indeed treats the delay as a signal that Inka does not know the word, even if he marks his candidate translation as a somewhat humorous contribution if not an outright wind-up through the smiley production of the word.¹⁹ Interestingly, Inka appears to shift her gaze to Sakari at the same time as he begins his turn, thus projecting an initiation of talk with him.

Similarly to the way the students solicit each other to produce the translation in Extract 6, Inka and her group members co-ordinate their knowledge states in the group conversational floor instead of addressing the teacher directly, thereby treating Inka as the rightful owner of the response slot of the IRE sequence. Key resources which the students employ in the management of

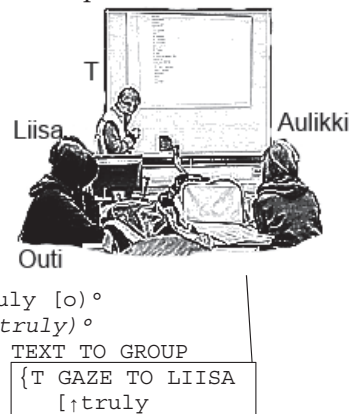
¹⁹ 'Puhtaasti' (literally 'cleanly') is in some contexts a legitimate Finnish translation of the word 'clearly'; however, in the context of the particular genre (essay writing) which the transitional items are being offered as scaffolding by the teacher, it is not observed in Finnish in the same functions as 'clearly' is in English.

these floors are the (lower) volume of talk, gaze, as well as the physical seating arrangement, which offers the possibility for mutual focus with three other students with little head movement from ‘home position’ (see e.g. Schegloff, 1998). Apart from Susanna’s eventual provision of the Finnish word ‘selvästi’ as a translation of ‘clearly’ at line 11, which Inka accepts and repeats to the teacher over lines 12-14, all other contributions to group talk are produced through whispering. In fact, in order to make the transfer from group to whole-class talk to provide the translation, Inka turns her torso towards the teacher, who is positioned at the front of the classroom behind her back (see transcript image).

Extracts 6 and 7 illustrate how information may be solicited from peers during an on-going IRE sequence. As we have seen, this can be done not only through an ‘on record’ information request that encodes a K- stance, but even the delay in the production of a response turn may suffice to indicate lack of knowledge regarding the object queried by the teacher. Such delays can thereby function as invitations to deliver missing knowledge so that it can be passed on to the teacher. However, initiating such byplay sequences whilst being engaged in the on-going main activity (IRE sequence) is a complex activity that imposes contingencies for the management of time in the side sequences. These contingencies are perhaps most clearly visible in unsuccessful search sequences, such as the one presented in Extract 8, which demonstrates how crucial matters related to timing may be when soliciting information from peers.

Extract 8. Truly

01 T †third (.) Outi.
 02 (0.7)
 03 Outi err kolmas
 04 T mm (.) kolmas kolman[neksi.
 mmh third thirdly
 05 Liisa -> [°(mikä truly [o]°
 °(what's truly)°
 {GAZE FROM TEXT TO GROUP
 {T GAZE TO LIISA
 [†truly
 06 T ->
 07 -> (1.7)
 08 T -> Liisa
 09 Liisa {SHIFTS GAZE TO TEACHER
 10 (1.2)
 11 -> °I don't know°
 12 SHIFTS GAZE TOWARDS GROUP
 13 [°(---)°
 14 T -> [you're truly-
 {T GAZE TO CLASS



Being a round robin activity, Liisa can expect to be due to answer not long after Outi, the student seated next to her, responds at line 3. Indeed, as the teacher is ratifying and complementing Outi’s answer at line 4, Liisa begins a softly spoken information request, which she addresses to her group (line 5). However,

before Liisa's turn has come to completion, the teacher has already announced the next item on the list ('truly') and shifted her gaze from the OHP to Liisa to allocate her the next response turn. However, as opposed to Extracts 6 and 7, no response to Liisa's request is forthcoming during the 1.7 second silence, possibly due to the group's physical proximity to the teacher, which 'exposes' their group floor to the teacher, or to the overlapping timing of the two activities. By summoning Liisa at line 8 (instead of checking whether she knows), the teacher treats the long silence as indicative of a problem in establishing reciprocity rather than in knowing how to translate 'truly'. This may be related to the lack of mutual gaze at the time of the teacher's visually conducted turn-allocation, which inhibits Liisa from seeing it (for teachers' ways of allocating turns by embodied means, see Kääntä, 2010, 2012).

The teacher's summons makes Liisa's display of epistemic status regarding 'truly' due, and, by doing so, eliminates her further engagement in group talk (and thereby the possibility to pursue a response to her yet unanswered information request from her group members). This she does provide at line 11, in the form of an 'on record' claim of insufficient knowledge (cf. Beach & Metzger, 1997; Sert, 2011), and withdraws from the whole-class activity back to the group floor. Providing a (no) knowledge display terminates Liisa's responsibility to participate in the whole-class activity, which the teacher acknowledges by shifting her gaze to the class to solicit (line 14) and subsequently nominate a further student to translate the item (not shown in the transcript).

All in all, this unsuccessful resolving of a knowledge gap concerning the Finnish translation of 'truly' demonstrates how quick peer responses need to be when information is requested during or slightly before being due to answer. Ultimately, the amount of time there is depends on how long the teacher affords to students' 'time-outs' (Mchoul, 1978, pp. 189–197) to think about their answer before beginning its pursuit or checking the student's epistemic status (see Sert, 2013). The length of this may differ not only across teachers but even in single classrooms by being sensitive to factors such as the physical arrangement of the space, as a comparison of extracts 7 and 8 suggests. Nevertheless, when a nominated-to-respond student needs knowledge, she does not have the time to wait until the whole-class sequence has come to a conclusion, unlike when teacher talk is treated as somehow problematic in cases where it is addressed to the whole class and the students are not immediately 'put on the spot' with either having or not having some information. For this very reason, the resolution of knowledge gaps through byplay to a IRE sequence needs to be executed more rapidly than in situations where fewer time constraints allow the participants the 'luxury' to use conversational resources such as repair (Extract 2), pursuits of response (Extract 4), the chaining of multiple requests (Extract 5), and other types of sequence expansions and insert sequences for the identification and management of gaps. Such resources are even more widely used in task-based interactional contexts, which are analysed in the next section.

4.2.4 Task-based environments

Besides whole-class interactions, knowledge gaps may emerge in contexts where students are working on pedagogic tasks, not only those pre-designed as 'group tasks' but also independently accomplishable exercises. In such cases, there is typically no simultaneously on-going whole-class activity that occasions lack of knowledge, as was the case with the sequences presented in sections 4.2.2 and 4.2.3. Instead, knowledge gaps regularly deal with some aspect of the pedagogic task, such as the spelling or meaning of a word, and the like. As a sequence is initiated in the course of task work, the on-going task-accomplishment is suspended for the duration of the treatment of lack of knowledge and resumed afterwards.

Students' task work may involve activities that have very diverse interactional organisations. Being seated at desks – which themselves are placed in the classroom so as to form small groups – provides students with interactional resources for the organisation of task-related activities. Most fundamentally, such co-presence of other individuals provides them with what can be termed as a *continuing state of incipient talk* (Schegloff & Sacks, 1973; Szymanski, Vinkhuyzen, Aoki & Woodruff, 2006), i.e. encounters in which talk, once initiated, can lapse and begin again at any time without engaging each time in some of the basic features which make up a single 'conversation', such as greetings or closings. This happens in the frequently occurring sequences when students, while doing independent task work, begin to talk in order to find out an unknown word that is needed for the task. Similar interactional phenomena – resumptions of talk with an information request after silent task work in classroom – have previously been described by Szymansky (1999, pp. 3–5). However, whereas Szymansky's investigation highlighted how 'questions' function as a resource for re-engaging talk in general, the next section examines the co-presence and the possibility it provides for re-engaging talk as resources which students routinely deploy for the specific purpose of resolving knowledge gaps.

4.2.4.1 Knowledge gaps in turns that re-engage talk

As shown by Szymansky (1999, pp. 3–5) for classroom interaction, the topics of talk proffered in re-engaging turns routinely rely on the common academic task in order to make the action conducted through talk recognisable. Unlike in contexts in which the treatment of a knowledge gap is initiated when talk is on-going and the gap concerns some just-prior aspect of group talk or instruction which is in the mutual focus of the participants by virtue of its sequential placement (e.g. querying a clarification of teacher talk, or requesting information during a group activity), turns that re-engage lapsed talk by indicating lack of knowledge frequently deal with topics to which their recipients cannot be taken to have immediate access. This means that the methods which students have at their disposal for identifying the nature of the knowledge gap to a specific recipient are different, a task which may require more interactional work compared to situations in which the knowledge gap concerns some aspect

of the just-prior turn. Some of the frequently observed methods for achieving this identification task include making references to shared previous events or using pedagogic materials in the formulation of the knowledge gap (see also section 4.5).

In extracts 9-11, all requesters re-engage talk during independent task work, employing various means to bring about a ‘conversation’ and construct enough context for their information request so that it may be understood and responded to by their selected recipient.

Extract 9. Where did the rats come from?




01	Alma	->	ai, (.) Mauri? oh, Mauri? {SHIFTS GAZE FROM DESK TO MAURI}
02			(1.2)
03	Mauri		°hɦm°
04	Alma	->	where did the rats °<come>°
05	Mauri	->	err (.) from India
06			(1.8)
07	Alma		<like swim mi:::ng o[::r,>
08	Mauri		[no (.) in a boat
09			you know, (.) a banana boat {ALMA SHIFTS GAZE TO HER DESK}
10	Alma		o<kay>
11	Mauri		well not really a banana boat but
12	Alma		<came o:n> ((BEGINS WRITING))

In Extract 9, Alma suspends her independent activity of writing a task answer and initiates interaction with Mauri. Alma summons Mauri, who is seated at the adjacent table (outside the image) through a turn that is prefaced with the Finnish change of state token / news marker ‘ai’, ‘oh’, (Heritage, 1984a; Kurhila, 2006, pp. 57–60; Sorjonen, 2001) to indicate that something has ‘just now’ been noticed (Bolden, 2006; for the particle “aa”, see Koivisto, 2014; Lehtimaja, 2012, pp. 118–121). Following Mauri’s signalling of his availability for the projected sequence (line 3), Alma requests information about the origin of ‘rats’ at line 4. As Mauri claims a K+ epistemic position by providing a response at line 5, Alma delivers a related request (line 7) that invites Mauri to further specify the rats’ mode of transport. Note how Alma begins to disengage from the sequence by shifting her orientation back to her task sheet after Mauri has named ‘boats’ as the carriers for the rats (line 9) and eventually terminates her engagement with the acceptance token ‘okay’ at line 10, while Mauri is still rewording his previous answer. From this point onwards, Alma’s verbal activity comments on her task-accomplishment, as she begins to vocalize her writing process (cf. Szymanski, 1999, pp. 17–19).

Besides addressing previously ratified knowledge in the classroom, students’ indications of lack of knowledge often relate intimately to the pedagogic artefacts. They are not only the locus of curricularly assigned learning objects,

but at the same time also function as resources for students to formulate and resolve emergent knowledge gaps. In Extract 10, the students are accomplishing independent tasks which involve the answering to questions that are based on the course text when Tuuli solicits Sylvi's knowledge of what counts as the correct task answer.

Extract 10. Baker's peel



01 Tuuli LIFTS GAZE FROM THE DESK TO SYLVI

02 -> kirjotak sääki Sylvi jostai kynttilästä
 are you also writing about some kind of candle, Sylvi
 {SYLVI LIFTS GAZE

03 Sylvi ↑m-↓mm
 {SHAKES HEAD

04 Tuuli GAZE TO OWN TEXT

05 -> onkse ↑sitte tämä <juttu>
 is it this <thing> ↑then
 {MOVES FINGER ON THE TEXT
 {GAZE BACK TO SYLVI

06 Sylvi SHIFTS GAZE TO TEXT

07 Tuuli että mikä pitää kirjottaa ku siinä lukee jotai et se
 that you have to write cos it says something that he

08 niinku (.) heilutti sitä
 like swung it
 {SWINGS HANDS FROM SIDE TO SIDE

09 (8.5) / TUULI'S GAZE TO TEXT;
 AT 2.5 S GLANCES AT ESTERI

10 Sylvi -> °°emmää tiiä°°
 °°I dunno°°
 {SHAKES HEAD

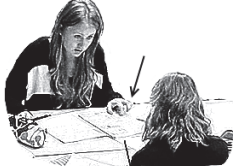

11 Tuuli TURNS THE PAGE KEEPING GAZE ON TEXT

12 (6.5)

13 Sylvi -> mää kirjoti vaan että- (1.6) mmh (.) että
 I just wrote that- (1.6) mmh (.) that
 it started from a wooden house in Pudding Lane
 {TUULI GAZE TO SYLVI

14

15 Tuuli joo
 yeah

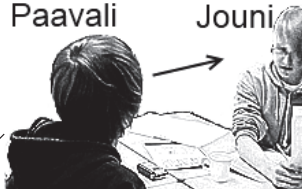


Similarly to Alma in Extract 9, at line 1 Tuuli lifts her gaze from the text she has been examining and directs it to Sylvi, thereby projecting talk to take place. She then breaks the silence and requests whether Sylvi too will be including 'candles' in her answer to a task querying the causes of the Great Fire of London in 1666, which is a cause that another speaker in the group, Alma, has alluded to some minutes earlier. It is a frequent occurrence in the data that these sorts of requests which query another student's task answer pave way to subsequent knowledge gaps by working as pre-requests (cf. Schegloff, 2007). Here, this becomes evident as Sylvi's response in which she claims not to write the same answer at line 3 is treated by Tuuli as a 'go-ahead' to continue with a request for

confirmation about whether a specific bit of the course text contains the task answer. Tuuli goes to great lengths to assemble together different resources in order to depict the knowledge gap and its relation to the course text, which are needed in order to render the request understandable. In the course of her extended turn, she directs Sylvi's attention to the course text by pointing at it (line 5, see also image) and portrays both verbally and through an embodied display a popular story told by the text how the fire started as a baker swung his bread peel and accidentally spread hot embers in his house (lines 7-8, see image).

Following a long silence during which Sylvi maintains her gaze on her text, Sylvi claims insufficient knowledge at line 10. Doing so as an account for not providing a 'knowing' confirmation to Tuuli's request testifies how the two participants orient to the activity as having to do with knowledge, and how knowledge in the classroom is intimately tied with obtaining (correct) task answers. After Tuuli has visibly withdrawn from turn-by-turn talk to investigate her own copy of the text, Sylvi does indeed provide knowledge in the form of her own answer to the task, which is a description of the location of the starting point of the fire (line 13). Note how it is marked as 'just' ('vaan', see VISK §828) a personal answer with no claim for correctness.

Besides enacting aspects of the course text to formulate the nature of the knowledge gap, students may also need to repair the terms of prior formulations of such a gap before they commit to a specific epistemic position in situations where mutual orientation to shared knowledge objects cannot be assumed. This can be seen in Extract 11, in which Paavali shifts his gaze towards Jouni and requests the meaning of the word 'occupy', which he has encountered in the task.



Extract 11. Occupy

<p>01 Paavali 02 -> 03 Jouni 04 05 Paavali 06 -> 07 Jouni -> 08 09</p>	<p>LIFTS GAZE FROM DESK TO JOUNI what does occupy mean PUTS HIS STACK ON THE TABLE AND LEANS TOWARDS PAAVALI häh huh what does occupy mean (1.3) TURNS THE PAGE IN HIS TASK SHEET what question EXAMINES THE TASK SHEET FOR C. 3 SECS</p>	  
<p>10 Paavali 11 12 Jouni -></p>	<p>POINTS AT JOUNI'S TASK SHEET I have here (0.5) Cana[da (part- (0.9) {TURNS THE PAGE IN HIS SHEET {GLANCES AT JOUNI [it is, (0.9) {TURNS THE PAGE</p>	

4.2.4.2 Knowledge gaps occasioned by group activities

The previous sections have described how knowledge gaps arise and become treated in the course of completing independent pedagogic tasks or participation in whole-class activities. Besides these sequential and activity contexts, knowledge gaps can also be occasioned by aspects of group talk and activities during task-completion, particularly in response to various indications of knowledgeability. Extract 12 illustrates how an overt correction may occasion a knowledge gap by making relevant epistemic asymmetry within a student group. In the extract, the students have just started examining their course texts as Inka 'notices' (Sacks, 1992b, pp. 87-97) and reads aloud a somewhat illegibly written passage in the text, in the course of which she pronounces the word 'dagger' as more or less like 'dogger'. The linguistic correctness of Inka's reading aloud is promptly challenged by Susanna, which eventually leads to the presentation of two requests related to 'dagger'.

Extract 12. Dagger

- 01 Inka no s:chool-ar ((scholar)) (.) shall wear a (.)
 02 dogger or any other weapon ((READS ALOUD))
 03 Susanna -> dagger
 04 Inka QUICK GLANCE TO SUSANNA, THEN SHIFTS GAZE TO TEXT
 05 Sakari dogger (0.6) [dog Sakari Susanna
 06 Inka [no täällä lugee Inka
 well it says here
 07 Sakari -> se [o dagger
 it is dagger
 08 Inka [oho
 oops
 09 Susanna yes but it is (.) spelled like <dagger>
 {INKA LEANS CLOSE TO THE TEXT
 10 (0.8)
 11 Inka dagge:r
 12 Susanna [(yes)]
 13 Inka -> [onks] se ↑dogger vai (.) [(dogger)] (.) [vai dagger]
 is it ↑dogger or (dogger) or dagger
 14 Susanna -> [dagger]
 15 Sakari -> [dagger] (.) da[gger]
 16 <da[ggeri] >
 17 Inka -> [what is] a dagge::r
 {GAZE TOWARDS SAKARI; SHIFT TO SUSANNA
 18 Susanna -> it is an (.) [err (.) th]at kind of,
 19 Sakari -> [knife]
 {'STABS' WITH RIGHT HAND

 20 Inka [(net)]
 21 Susanna [knife,] (.) err, (0.8) they-
 22 there are err that [kind of in R:unesca]pe
 {GLANCES AT SAKARI
 23 Inka [>meat knife< (.) >meat knife<]
 24 (2.0)
 25 Susanna I wouldn't know [it if I would not have not] err,
- 

26 Inka [r:::~::~↑u↓ne:::]
 {GAZE TO TEXT
 27 Susanna played Runescape
 28 Inka err, (1.2) how are they similar ((READS A TASK))

As Inka has come to the end of her read-aloud, Susanna flatly corrects her at line 3 by repeating in a modified form part of Inka's turn ('dogger'->'dagger'). Going back to check the text, Inka first insists in Finnish, that 'it says' dogger at line 6, but, after having investigated the text, projects that she might be epistemically backing down by producing an interjection ('oho', 'oops') to convey noticing something while re-examining the text.²¹ Susanna, however, is not backing down but instead the turn design of her response ('yes but') to line 6 maintains her previously asserted claim to a K+ epistemic position over the proper spelling of the word – even if the text spelled it incorrectly.

These corrections – which are effectively claims to knowing the word 'dagger' by Susanna and Sakari – make relevant a knowledge asymmetry between the two students (K+) and Inka (K-). Following a close examination of the course text (see image), the latter subjects to such positioning by requesting confirmation of whether the word in the text is in fact 'dagger' or 'dogger' at line 13. As confirming responses for the correct spelling are produced by both recipients at the earliest possible point in overlap with the request at lines 14-15, Inka moves on to query the meaning of 'dagger', which has by now been established as the 'correct' form of the word in the course text. Again, her request is responded to by both Susanna and Sakari who collaboratively establish using linguistic and embodied resources (see image) that 'daggers' are 'knives' over lines 18-22. Note how the participants draw on the resources offered by the two available languages, Finnish and English, in resolving the knowledge gap. It appears that Susanna's insistence on using English motivates Inka and Sakari to change the language from Finnish to English midway through the sequence.

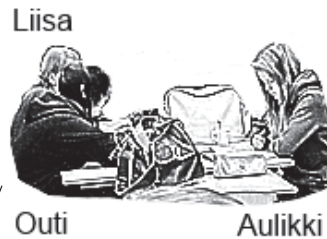
To summarize, Extract 12 shows how lack of knowledge may be indicated in a sequential context in which asymmetric distribution of knowledge has somehow been made relevant, thus motivating an information request by the participant having been positioned as 'less knowing' concerning the knowledge object in question. More specifically, the two related gaps were occasioned by a correction of a turn-constructural component of a 'noticing' (Sacks, 1992b, pp. 87-97; see also Szymanski, 1999), which directs the recipients' attention to an observation on the linguistic environment – in this case, an (amusing) article of Tudor time school rules.²²

²¹ See VISK §856 for how 'oho' may be used as an affective reaction to information conveyed by a previous turn. However, here the immediate sequential context is different: 'oho' does not so much respond to Susanna's correction at line 3, nor is it a reaction to Sakari's (overlapping) assertion of information at line 7, but is rather produced as a reaction to her own re-examining of the text after having insisted that it says 'dogger'.

²² There is a range of ways in which students vocalise their individual activities when working with texts, some of which are described in Szymanski's (1999) investigation of methods for re-engaging talk in the classroom. As the previous extracts have illustrated, 'reading aloud' text can be done e.g. for the purposes of sharing a task answer,

Besides providing overt correction, there are other contributions to group talk which are examined by reference to the epistemic (K+) claims they make, and which therefore may occasion an indication of lack of knowledge to be presented to a recipient deemed knowledgeable. In Extract 13, students have been examining their course texts based on which they are supposed to formulate questions beginning with given interrogative words in a task sheet to be presented to other students later. As Outi proposes a possible question beginning with 'where' to Aulikki, who is in charge of writing down the group's answers, two related information requests are presented.

Extract 13. Marriage



- 01 Outi -> pistä vaikka tohon <whe:re,> (.) ni (.)
for that <whe:re>, you can for example put (.) that
 {POINTS AT TASK SHEET IN FRONT OF AULIKKI
- 02 -> err (0.6) whe(re) did de unmarried girls live
- 03 Aulikki BEGINS WRITING
- 04 Liisa -> >missä tossa se<
 >where (is) it there<
 (1.5)
- 06 Outi -> se on tässä, (0.7) öö (0.9)
 it's he:re, (0.7) umm (0.9)
 {FLIPS HER TEXT OVER, L LEANS CLOSER TO O
- 07 -> nelo[ssessa
 in four
- 08 Aulikki -> [(onk) ↑siinä kaks ärrää
 does ↑it have two Rs
 {SHIFTS GAZE TO OUTI
 {OUTI SHIFTS GAZE TO AULIKKI
- 09 Liisa aa
 oh
 {TURNS GAZE TO OWN COURSE TEXT
- 10 Outi (2.0) / LEANS CLOSER TO OWN COURSE TEXT
- 11 -> joo
 yeah

Even if Outi's candidate task answer at lines 1-2 is formulated as a somewhat hedged directive through the deployment of the Finnish focus particle 'vaikka' (~'for instance', see VISK §841), the very act of proposing a candidate task answer in group work claims that that which is being proposed fits the category of 'correct' answers. In the context of this particular task, the parameters set for correct answers not only restrict their grammatical format but also regulate that the answer to any question-as-a-task-answer should be found in the course text.

'noticing' something noteworthy or doing self-talk in the form of an 'outloud'. It may be that prosodic means offer important resources for indexing these different functions: a 'mumbling', lower volume production of a verbal turn, such as Alma's outloud at line 12 in Extract 9, may be taken to index that the turn is produced as 'self-talk' (Goffman, 1978).

By formulating and announcing a question to be used as a task answer therefore implies that its announcer should know *where* in the text the answer to the question may be found. As we see, this is indeed the information which Liisa identifies as a knowledge gap at line 4. By virtue of the three girls forming a group answering a joint task, information concerning the answer is relevant to all members, even if Liisa was not addressed in Outi's original directive at lines 1-2 to note down the task answer.

While Outi is still responding to Liisa's request by detailing the location of the information in the course text, item number four in a list, Aulikki presents at line 8 a further request for the confirmation of the spelling of a word ('unmarried') in Outi's previous proposal for a task answer. Aulikki uses her gaze to address the request to Outi, thereby holding her as the presenter of the task answer responsible for producing this further clarification of spelling. After soliciting the text for some two seconds, Outi duly obliges to having been projected as a possible knower and responds to the request for spelling at line 11, confirming ('joo', *yeah*) the candidate spelling Aulikki presented (see section 4.5.3 for more ways how request design may show structural preference for one polar option over another).

In summary, Extract 13 illustrates how students may orient to the implications for knowledge distribution of a turn, in this case a formulation of a task answer and a directive to write it down. Formulating an answer for a joint task is an action that claims knowledge that a) the linguistic formulation of the answer is indeed 'correct', and b) it conforms to the requirements set by the pedagogic task to the category of answers on that occasion. Both claims may give rise to information requests and verification sequences (e.g. Liisa's request), as well as be contested in the ensuing interaction. The line between checking where the knowledge drawn on in a task answer formulation is and contesting the grounds or correctness of that formulation may sometimes be ambiguous for the participants (and thereby the analyst). Note, however, how Liisa's use of a change-of-state token 'aa' ('oh') to claim noticing at line 9 (see also Extract 2) is sufficient to confirm that her previous information request was not concerned with contesting.

4.2.5 Summary

This section has examined different interactional contexts in which students initiate sequences to address knowledge gaps in the data collection classroom. The investigation shows that lack of knowledge is an interactional concern in a range of environments. For example, knowledge gaps are frequently resolved as student 'byplay' (Goffman, 1981, pp. 133-134), parallel yet subordinate to the whole-class talk to address problematic aspects in teacher talk and in the formulation of pedagogic tasks. In many ways, such sequences thus serve similar functions to the organisation of repair in everyday conversation, such as the maintenance of understanding. In the classroom, however, the students have the possibility to repair trouble items through 'other selection' (see Bolden 2011; Bolden 2012) by soliciting their peers. When knowledge gaps are resolved par-

allel to some whole-class activity, they may constitute more or less urgently required information, which presents interactional contingencies to the accomplishment of such sequences. For example, when information is requested in preparation for or even during an IRE sequence by the student who has been nominated to respond to teacher, the classroom main activity places contingencies on the accomplishment of the side sequence.

Yet a different interactional context for lack of knowledge is task work, whether or not such tasks are meant to be conducted as a student group or independently. Task work often involves what may be termed as a 'state of incipient talk' (Schegloff & Sacks, 1973; Szymanski et al., 2006), as participants rarely sustain a single, focused conversation for the duration of any task. Rather, the students' co-presence offers the possibility to initiate talk at a time when it is needed for task-accomplishment. Often talk is initiated by means of sequence-initiating information requests, which re-engage talk by the very act of indicating a knowledge gap and inviting the recipient(s) to assist in its resolution. They are a way for students to bring into the attention of their group some problems in their independent task work, and the fact that they can do so 'out of the blue', with no or very little prefacing, indicates that knowledge and 'correct' task answers are a pervasive concern to all participants in the classroom. Besides these, on-going group talk may also occasion knowledge gaps, the resolving of which is often initiated following various types of knowledge displays or claims regarding aspects of the pedagogic tasks.

4.3 On interactional tasks in the management of knowledge gaps

Having identified different interactional contexts in which lack of knowledge is conveyed in first-pair part (FPP) positioned turns and subsequently addressed in the data collection, we may now, in response to research question (2), sketch out some (i) recurrent aspects of the sequence organisation of such activities and (ii) interactional tasks involved. As the analysed data extracts thus far have revealed, student-initiated knowledge gaps are resolved through sequences which are organised around an adjacency pair formed by a K- positioned indication of a knowledge gap as a first pair-part (FPP) turn and the second pair-part (SPP) response it makes conditionally relevant, or at the very least, invites (cf. Schegloff, 1968, 2007; Stivers & Rossano, 2010a). Often, however, this minimal two-turn adjacency pair structure involves various pre, insert and post expansions (Schegloff, 2007), which it is argued here, are deployed for conducting quite specific interactional tasks related to management of knowledge. This section will identify three such tasks, which will then be analysed more thoroughly in the sections that follow (4.4–4.6).

Epistemically, by indicating lack of knowledge a student positions herself as 'unknowing' (K-) and the addressed recipient(s) as a possible knower (K+) with regard to some knowledge object or state of affairs. However, a mere FPP positioned turn which is recognisable as a 'question' or an 'information request'

does not alone guarantee that a sequence will be initiated in the classroom. Rather, that involves negotiation of the addressed recipient's availability and responsibility to participate in the projected sequence, a task that is perhaps more clearly visible in sequences which involve participant foci on multiple courses of action. Provided that reciprocity can be established, the epistemic positionings of the involved parties, conveyed by the FPP turn are subject to renegotiation in the ensuing interaction. At the most basic level, this means that the parties need to establish whether the recruited recipient 'really' knows, and conversely, whether the requester is indeed 'unknowing'. Both are issues that the participants manage by assembling together linguistic, semiotic, embodied and sequential resources.

Thus, the interactional management of student-initiated lack of knowledge routinely involves at least the following tasks:

- 1) Recruitment of a 'possible knower', i.e. speaker selection, co-ordination of the activity with and suspension of other possibly simultaneous activities, as well as negotiation of the responsibility and obligations towards the recipient's participation in the sequence;
- 2) Identification of a knowledge gap, i.e. the use of linguistic, semiotic, embodied and artefactual resources to identify a knowledge object and express some (varying) degree of K-epistemic status towards it;
- 3) Production of an SPP response and negotiation of the degree of its knowledgeableability

The argument that runs through the study is that the aforementioned interactional tasks have particular sequential locations in which they are typically accomplished, and if need be repaired, in and around the base adjacency pair. This is illustrated in Figure 2, which describes how the three interactional tasks relate to the organisation of sequences which address lack of knowledge.

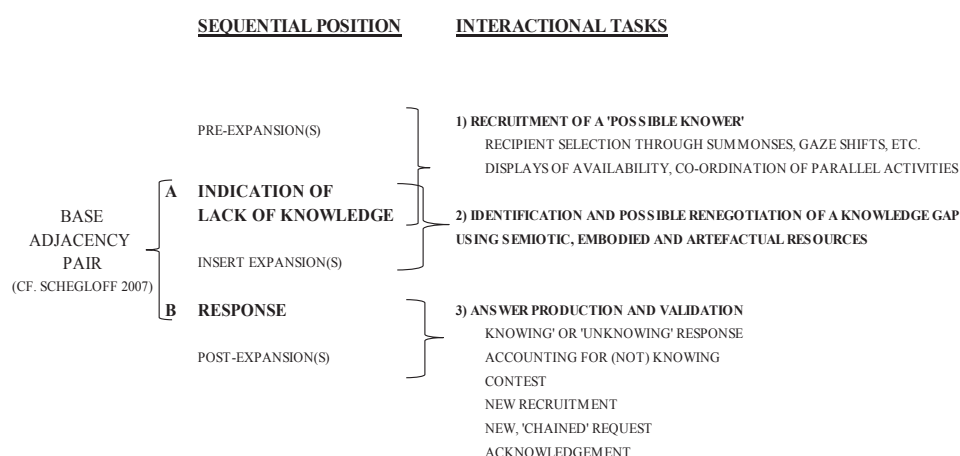


Figure 2. Sequence organisation of student-initiated knowledge gaps

As can be seen in Figure 2, task (1) has sequentially speaking the widest 'home base', as speakers routinely begin to orient towards specific recipients already before they indicate a knowledge gap, in the form of pre-beginning gaze shifts (cf. Schegloff, 1996b), summonses, or pre-requests, which all contribute to aligning the participants' activities for the projected sequence. Sometimes work for establishing alignment continues up until the production of the SPP response, such as when the recruiting of a K+ individual requires multiple attempts or the answer needs to be pursued (Pomerantz, 1984b). Whether or not the addressed recipient actually conforms to their positioning may also be a matter of negotiation, and is ultimately only resolved when a response to an FPP indication of lack of knowledge is provided.

The second task – identification of a knowledge gap by conveying an implication of a K- epistemic status regarding some object or state of affairs – is frequently done through the assembling together of linguistic resources to construct 'information requests', but may also be accomplished by drawing the recipient's attention to the use of embodied or sequential resources, or a combination of all of them. This not only includes the establishing of *what* it is that is not known, but also determining the *degree* to which the said object may be unknown. The identification of a knowledge gap may also need additional work, such as when information requests are further specified through turn-increments or new turn-constructive units (Couper-Kuhlen & Ono, 2007; Schegloff, 1996b) past a point of possible completion. Furthermore, possible insert sequences may also be conducted to clarify or otherwise renegotiate the terms of a knowledge gap. This happens for example when addressed answerers initiate repair to relate the missing knowledge to pedagogic texts and tasks or offer their 'best guesses' when the provision of a K+ response is somehow problematic.

Finally, when a K+ response which has been made relevant by an FPP information request is provided, the task remains for the participants to establish its relevance and validity 'for all practical purposes' (Garfinkel, 1967). The outcome of this task presents contingencies for the ensuing interaction; for example, if a response appears in some way inadequate to the requester, the possibility remains to contest that answer or redirect the original knowledge gap to another speaker and thereby initiate a new sequence for its resolution. On the other hand, when the addressed recipient proves to be 'knowledgeable' regarding the topic of the information request, further gaps may be addressed by 'chaining' question-answer adjacency pairs together (Sacks, 1992a, pp. 256, 264; ten Have, 2007, pp. 132–133), which provides a systematic interactional means for accumulating knowledge on some specific information domain. All in all, the task of ratifying the validity of a response can sometimes lead to quite elaborate post-expansions to the base adjacency pair.

The next three sub-chapters (4.4-4.6.) will further describe the accomplishment of the aforementioned interactional tasks in their sequential locations of occurrence.

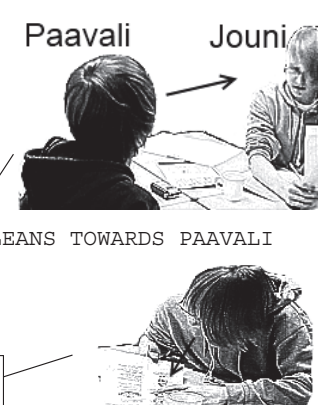
4.4 Recruiting a ‘possible knower’

4.4.1 Gaze and body orientation

When students make a knowledge gap of some sort visible and resolvable, they are faced with the interactional task of recruiting someone who may be likely to provide a knowledgeable answer to their query. Doing that involves the management of speaker transition from the current speaker to the next, which, as the previous research on everyday multi-party conversation has illustrated (see Sacks et al., 1974), can be achieved either by the current speaker selecting a specific next, or if no-one is selected by the current speaker, the remaining parties can self-select. In case the current speaker selects the next speaker, they have available a range of resources, such as gaze, various address terms and tag questions (ibid., pp. 716–718) as well as context-sensitive, ‘tacit’ address terms (Lerner, 2003, pp. 190–195) to accomplish speaker transition.

In the sequences examined for this study, students who convey lack of knowledge routinely show that they convey their indication of a knowledge gap to *someone* as opposed to *anybody* – an observation that also supports prior research findings by Stivers and Robinson (2006, p. 375) on multi-party conversation in American English. A frequent way to determine the recipient involves directing gaze, often together with shifting body orientation, towards the selected next speaker. Consider the following example (the beginning of previously shown Extract 11), in which Paavali re-engages talk and uses his gaze to select Jouni to respond to his information request on the meaning of the word ‘occupy’.

Extract 14. Occupy (beginning of Extract 11)

<p>01 Paavali</p> <p>02 -></p> <p>03 Jouni -></p> <p>04</p> <p>05 Paavali</p> <p>06</p> <p>07 Jouni -></p> <p>08</p> <p>09</p>	<p>LIFTS GAZE FROM DESK TO JOUNI</p> <p>what does occupy mean</p> <p>PUTS HIS STACK ON THE TABLE AND LEANS TOWARDS PAAVALI</p> <p>häh</p> <p>huh</p> <p>what does occupy mean</p> <p>(1.3)</p> <p>TURNS THE PAGE IN HIS TASK SHEET</p> <p>what question</p> <p>EXAMINES THE TASK SHEET FOR C. 3 SECS</p>	
---	--	--


Paavali, who has been looking at his papers before the sequence, lifts his gaze at line 1 and directs it towards Jouni, who is sitting in front of him handling his own course material, as opposed to Matti, who is the third member of the group seated next to Jouni (off-camera). This action projects the beginning of some action addressed to Jouni, and immediately after Paavali’s shift of body orientation has come to conclusion, he requests the meaning of the word ‘occupy’ (line 2). Paavali keeps his gaze fixed towards Jouni through and after the delivery of

the request. The recipient, Jouni, displays his willingness to participate in the sequence by visibly disrupting his on-going activity of handling a stack of papers (line 3), shifting his orientation to Paavali and initiating repair (line 4). By doing so (as opposed to, for example, checking whether Matti is about to respond), Jouni treats himself as the addressed recipient and the rightful 'owner' of the next turn.


As is the case in the previous extract, the recruitment of a 'possible knower' by means of gaze and/or body orientation quite frequently and unproblematically occurs in what may be called a pre-beginning position (cf. Schegloff, 1996b), that is, slightly before a verbal turn indicating lack of knowledge takes place. As soon as such a recruitment action has been recognisably conducted, the addressed recipients already begin to shift their orientation to the speaker and thus display their availability and willingness for talk. The recipient can do this already at a stage in which the turn projected by the gaze shift is not complete, as the next extract illustrates. It involves a word meaning related knowledge gap ('sunset') which Susanna invites Inka to resolve during independent essay writing and at a time when no conversation is on-going apart from Sakari's audible counting of the number of words in his essay, which Inka is observing when she is presented with the information request.

Sakari Susanna Inka

Extract 15. Sunset



01 Susanna -> SHIFTS GAZE FROM TEXT TO INKA
02 [mikä o sunset (.)
what's a sunset
-> {INKA TURNS HEAD AND GAZE TOWARDS SUSANNA



03 (Sakari [kakskytkaheksa)
twenty-eight
04 Susanna onk se niinku illalla (.) ni sunset vai,
is it like in the evening (.) that sunset or,
{GAZE DOWN TO DESK IN FRONT OF INKA
05 (2.0) / INKA ROLLS EYES SLOWLY FROM ONE SIDE TO OTHER
06 Inka -> dawn ja sunset
dawn and sunset
07 (1.4) / AT 1.0 SECS INKA SHIFTS GAZE TO DESK
08 -> se on kai
it is I guess
09 Susanna SHIFTS GAZE TO OWN TASK

At line 1, Susanna interrupts her writing, lifts gaze from her notebook and rotates her head so that she is facing Inka. Similar to Paavali's recruit in the previous extract, this movement is brought to completion before Susanna begins to enquire the meaning of the word 'sunset'. She thus uses the 'visual floor' (Mondada, 2007, p. 203) in a pre-beginning position before taking a turn in order to specify turn transition *following* her incipient turn. Note that the bodily orientation afforded to Susanna by the configuration of desks here means that her default position and one that she has maintained during her independent work is facing Sakari. This means that in order to select Inka by means of a gaze shift towards her Susanna needs to do extra work by adopting a certain degree of 'body torque' (see Schegloff, 1998). Nevertheless, Inka is the student whom Susanna addresses the request, as opposed to Sakari, who is counting the number of words in his essay.²³ As Susanna begins her verbal turn at line 2, Inka, who has until this point been orienting to Sakari's word-counting activity, slightly turns her head to face Susanna more fully and confirms her availability for interaction (see transcript images). This shift in orientation occurs at approximately the second syllable of the interrogative word 'mikä' ('what') and achieves the two parties' alignment to addressing the knowledge gap.

For most of the multi-TCU information request, Susanna's gaze appears to be on Inka's desk, with the exception of the first occurrence of the word 'sunset' at line 2, during which she gazes directly at Inka before shifting her gaze again to Inka's desk. Inka's response is in many ways produced as a fairly non-affirmative one. Firstly, the beginning of the response is delayed (line 5) during which she rolls her eyes so that at least her left eye ends up in top left corner before making a reference at line 6 to the word pair 'dawn and sunset' which has been mentioned in the course material (see Sert, 2013, pp. 23–24 for how such micro gestures may be interpreted as carrying epistemic implications). Furthermore, the word pair itself is not a type-conforming response to a polar information request, which is provided as a hedged 'best guess' at line 8 after Inka has already withdrawn her gaze.

In both extracts (14 and 15) discussed above, the selection of a 'possible knower' takes place before any request turn, or talk for that matter, has been voiced. This is characteristic of the treatment of many knowledge gaps in the data, particularly in sequential contexts involving incipient talk (Jones & Thornborrow, 2004; Schegloff & Sacks, 1973; Szymanski, 1999) whereby students are conducting some sort of primary activity, such as independent tasks but (related) conversational exchanges may be opened at any time. Initiating sequences in this kind of context is commonly done through a visual display of

²³ It is interesting why Susanna does not select Sakari, who, from the point of view of required body movement, would be more easily accessible. While it may well be that this constitutes an orientation towards Sakari's being engaged in another activity and therefore possibly unavailable to address the knowledge gap (although Inka certainly does not gaze towards Sakari at any point), the decision to select Inka may also have epistemic underpinnings, involving an analysis of the likelihood of receiving a knowledgeable answer. In the classroom data used for this study, it can be observed that some students tend to be asked to answer requests more often than others, which is a theme that will be addressed in Chapter 6.

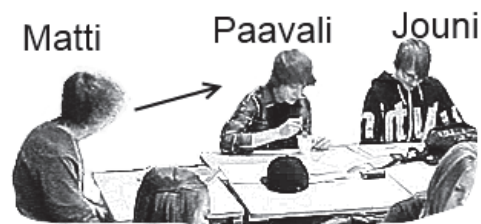
interruption of the on-going activity and the shift of gaze to the selected party, in other words as *pre-beginning elements* (Schegloff, 1996b, pp. 92–93) which project the beginning of a turn. They are also available to the other parties as such, as can be seen in the orientations of both addressed (display of availability) and non-addressed (no claim for speakership) recipients in extracts 14 and 15.

4.4.2 Verbal addressing

In addition to gaze, students can address their requests for specific recipients to answer by using address terms, such as personal names, terms of endearment or institutional role categories ('teacher'). Using an address term allows the speaker to unambiguously select the next speaker without the vulnerability to the lack of mutual gaze – in order to succeed, the selected next-speaker as well as non-selected speakers need to see that selection by gaze is employed (see Lerner, 2003). Despite being a more salient and explicit speaker-selection technique, verbal addressing still constitutes a less frequently used method in the data collection compared to selection by gaze, an observation that is in line with what Lerner (*ibid.*) reports in his study on everyday conversation.

Furthermore, an address term can have a range of formulations and sequential positions relative to the FPP action of indicating lack of knowledge. Consider the following extract in which a person name is used to summon a recipient before a request is made.

Extract 16. What did they study?



01	Matti	STOPS WRITING, BRIEFLY GAZES TOWARDS THE BOARD AND LOOKS AT HIS LEFT HAND
02	->	[Paavali's surname]
03	->	GAZE UP FROM DESK TO PAAVALI
04	Paavali	-> m[mh
05	Matti	[mitä siellä opiskeltii ʃsielläʃ (0.8) öö, (1.2) what did they study ʃthereʃ (0.8) umm (1.2)
06	Paavali	-> emmä tiiä= I dunno
07	Matti	=tämä (.) aikaisessa koulussa at school at that time {PAAVALI MOVES HEAD FROM LEFT TO RIGHT
08	Jouni	↑englantia ↑English {GAZE ON DESK
09	Paavali	SHRUGS SHOULDERS QUICKLY

The extract takes place at the beginning of a lesson when the teacher is instructing an upcoming activity, which the students are supposed to be following. However, Matti is still completing his homework as he interrupts his writing and summons Paavali by using the latter's surname, followed by a gaze shift

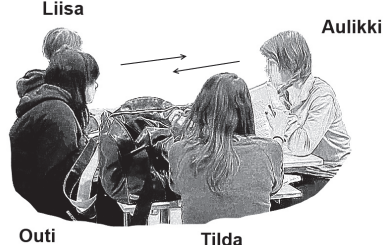
towards him (lines 1-3). Such summons-answer exchanges (Schegloff, 1968, 2007) are an example of pre-sequences which are not self-standing but project some kind of subsequent talk. This is indeed the case here, as partly overlapping with Paavali's signal of availability (line 4), Matti proceeds to request information regarding school curriculum during the historical period the class is currently studying (lines 5, 7).

Note that Matti shifts his gaze towards Paavali after the use of person reference, suggesting the verbal addressing is the primary device for next speaker selection. This constitutes a kind of reinforcement of the verbal turn, even if it is the verbal summons that Paavali actually responds to by providing the token of availability.²⁴ The use of an address term, as opposed to simply selecting by gaze, may here be motivated by the complexity of the context in which gaze might turn out to be an insufficient method for speaker-selection: Paavali is visibly attending to his tea cup (a weekly lesson-beginning tradition in this class), which might make him unable to see a selection through gaze. To add to this, Matti is conducting a different activity from the teacher-led whole-class task instruction, meaning there is parallel talk for Paavali to follow, which may make embodied selection complicated.

This function of verbal addressing as a device for potentially vulnerable situations can also be seen in the way it is deployed in pursuits of reciprocity. In Extract 17, the students are working on a group task at the same time as the teacher is beginning to show a video clip on the overhead projector to those students who have arrived late. This coincides with Outi's information request that targets a word meaning ('administer'), which she addresses to Aulikki at line 4 by using gaze, and briefly interrupts the already begun group talk sequence as Aulikki shifts her attention to the teacher.

Extract 17. Administration

01	T	STARTS TO PLAY A VIDEO, MUSIC BEGINS	
02		so everyone else, (.)	
03		don't let us [disturb- (.)] †aah	
04	Outi	->	{SHIFTS GAZE TO AULIKKI [mikä o administer what's administer
		->	{A'S GAZE TO TEACHER
05	Outi		GAZE TO TEACHER AND BACK TO AULIKKI
06		->	Aulikki
07	Aulikki	->	häh huh {GAZE TO OUTI
08	Outi		mikä o administration what's administration
09			(1.0)



²⁴ Note also how the participation by Paavali (withdrawn gaze throughout the sequence, a fast K-claim) and Jouni (a 'jokey' response) constitute rather minimal involvement with Matti's interactional project of finding resolution his lack of knowledge. This will be returned to in section 4.6.

10 Aulikki SHIFTS GAZE TO HER PAPERS ON THE DESK
 11 missä se lukee
 where is it

Prior to the exchange, the students have been discussing their group task, which is interrupted here as the teacher begins to address other students and prepare a video to show to them. Still treating the group talk floor to be in operation, Outi shifts her gaze from her task papers towards Aulikki, whom she is facing directly, and establishes mutual gaze with her in overlap with the teacher's instruction (line 3).²⁵ Immediately following this movement, Outi, using Finnish, indicates lack of knowledge regarding the meaning of the word 'administer' at line 4. Similar to extracts 14-16, Outi thus selects a specific recipient for an incipient sequence in the pre-beginning position (Schegloff, 1996b).

However, at the same time, the teacher's instruction is perturbed as she conveys that she has just noticed a problem with the video, and Aulikki shifts her orientation towards the front of the classroom before Outi's turn has come to completion. Aulikki's shift of orientation to the teacher takes place simultaneously with the teacher's prosodically prominent particle ('aah') claiming noticing. Not having been able to secure the attention of her selected recipient for the complete turn, Outi takes a step back and pursues Aulikki's reciprocity by summoning her using her name at line 6, instead of soliciting any of the other two students in the group. After Aulikki has signalled her availability by returning her gaze (see image), Outi redelivers her information request in nearly the same format, having only changed the trouble item from a verb into a noun ('administration').

In this case, a verbal address term is deployed as a second, upgraded method of speaker-selection after a previously initiated sequence is interrupted by a simultaneous, external activity in the classroom. Such interruption led to the loss of the participants' sustained focus on the incipient sequence, as Aulikki's orientation momentarily shifted towards the teacher. Notice that when Aulikki does get back to the talk with Outi, the parties do not pick up from where they had left, i.e. from Aulikki's answer, which the first formulation of the request has made relevant. Instead Aulikki's 'häh' ('huh') treats the just-prior verbal addressing as a pursuit of reciprocity (by only signalling availability) and not that of a response to Outi's first information request. Similarly, by asking nearly the 'same question' on the second time, Outi orients to the pursuit as having to do with reciprocity, unlike in situations where the reformatted request would somehow topicalise the recipient's epistemic status (see e.g. Extract 26).

Besides making the recruitment of recipients to respond to an FPP action explicit in possibly problematic situations such as described above (see also Lerner, 2003, p. 184), the use of verbal address terms allows the student indicating a knowledge gap to free their gaze and bodily orientation for bringing into

²⁵ Facing Outi, Aulikki's body orientation is by default towards Outi. Before Outi's gaze shift and up to the teacher's 'aah' at line 3, Aulikki's gaze appears to be towards Outi (as opposed to texts, other materials etc.).

the parties' mutual focus other objects and artefacts simultaneously to talk. Such objects, which may be treated as relevant to the focal sequences by the use of embodied actions, include notebooks, task sheets or other classroom artefacts, aspects of which frequently become treated as knowledge gaps. This is one specific context in which the use of verbal address terms may be used as a first 'go-to' method of next-speaker selection instead of being a device for somehow problematic situations such as in Extract 17. Consider the following extract in which Alma addresses a recipient, Esteri, who is seated at the opposite end of the table and requests the location of information related to 'Puritans' in the course text. When delivering the request, Alma handles three artefacts: the task sheet where the teacher-assigned question on the Puritans appears (on the table), her notebook where she writes the answers (on the table, partly overlapping the task sheet) and the course text (in her left hand) where information for an answer to that question should be found.

Extract 18. The Puritans

- 01 Alma -> °Esteri onko nää niitä-°
 °Esteri are these those-°
 {QUICK GLANCE TO ESTERI
- 02 -> LIFTS THE COURSE TEXT IN FRONT OF HER
- 03 Esteri GAZE TOWARDS ALMA
- 04 Alma -> °missä on ne puritan°
 °where are those Puritans°
 {PUTS FINGER ON TASK SHEET
 {GAZE TOWARDS ESTERI
- 
- Alma Esteri
- 05 Esteri °what°
 {LEANS CLOSER TO ALMA
- 06 Alma °ne puritaanit°
 °those Puritans°
 {LIFTS HER NOTEBOOK TO LOOK AT TASK SHEET UNDER IT
 (1.7)
- 07
- 08 Esteri °;ai (.) kasi°
 °;oh (.) eight°
 {LEANS BACK

Alma's re-engagement of talk at line 1 follows an approximately 35-second silence before which Alma and Esteri have been talking about the task, which may be why Alma selects Esteri as a 'possible knower' instead of addressing the turn to the whole group. Nevertheless, by addressing verbally someone with whom (topically related) talk has earlier been conducted orients to the possibil-

ity that that specific participation framework (Goffman, 1981, pp. 124–159) needs to be newly established. Much like the embodied speaker-selection methods described in the previous section, the verbal address term ('Esteri') precedes the initiation of the projected action. However, as opposed to being a separate summons-answer sequence such as the pursuit shown in Extract 17, the address term is used as a pre-positioned TCU of a complex information request which makes Esteri's response conditionally relevant. Up until Alma utters the word 'niitä' ('those'), her gaze is still on her course materials on the desk, during which she momentarily shifts it towards Esteri. It is in this sense that the verbal and visual modalities here display a division of labour (Kääntä, 2010, p. 189), allowing Alma to select the next speaker and initiate a sequence verbally while handling the pedagogic artefacts that she assembles together for the construction of the requesting action.

Following her quick glance at the named recipient, Alma cuts off the first formulation of a knowledge gap and re-oriens to her course text, which she prominently displays to Esteri (line 2) and formulates a new request at line 4. It is only towards the end of line 4 that mutual gaze between the parties is established. While lack of recipient gaze is indeed a routine cause for restarting turns (see e.g. Goodwin, 1980; Heath, 1984, p. 249), it appears that here Alma's self-repair orients to the formulation of the knowledge gap, something which will be discussed more thoroughly on p. 145 in connection with methods for identifying knowledge gaps. For now, it suffices to note that the selection of a 'possible knower' by the use of a verbal address term 'frees' the resources of the body to be used for other simultaneous tasks, which are needed to accomplish a complex information request that requires the co-ordination of two physical objects with talk.

Besides activating previous participation frameworks, using an address term such as a person name, is also an available method when consulting the epistemic resources of a recipient that is located further away from the identifier of a knowledge gap, in which case selection by gaze may be especially problematic. In such situations, the mere shifting of gaze would not necessarily unambiguously discriminate between the addressed recipient and non-addressed persons seated in the same gaze direction. In the following extract (the complete sequence of which has been shown as Extract 9), instead of soliciting help from her group members, Alma interrupts her independent task activity and addresses an information request to Mauri in the adjacent group (off-camera).

Extract 19. Where did the rats come from?

01	Alma	->	ai, (.) Mauri? oh, Mauri? {SHIFTS GAZE FROM DESK TO MAURI}
02			(1.2)
03	Mauri	->	°hmm°
04	Alma		where did the rats °<come>°



As noted previously in section 4.2.4.1, Alma's Finnish-language, turn-initial change-of-state token marks the interface of independent activity and turn-by-turn talk. Following this, she initiates a summons-answer pre-sequence (Schegloff, 2007) to establish Mauri's reciprocity for the projected action, which the latter grants after a 1.2 second silence at line 3 ('hhm').²⁶ Alma's next-speaker selection employs both verbal and visual (gaze shift) channels, as she begins to utter Mauri's name slightly before directing her gaze towards Mauri as she comes towards the end of the verbal address term. Alma's keeping her gaze down on the desk suggests that the recipient selection is not based on any embodied conduct, such as posture, by co-present parties in the room, which in turn could be taken as a display of availability to talk. This indicates that the choice to select Mauri appears to be prior to any such analysis. Indeed, a few minutes before the extract, Mauri had answered a question on the plague presented and later validated by the teacher in the whole-class interaction, which may have motivated Alma's selection of Mauri as a possibly knowledgeable individual (this theme will be returned to in section 5.3).

Taken together, the analyses conducted in sections 4.4.1 and 4.4.2 suggest that knowledge gaps are frequently addressed to specific recipients to resolve, whether done using embodied or verbal resources. Most of the time, the selection of a recipient takes place before a turn is initiated, often in the form of gaze shifts in pre-beginning positions and/or verbal addressing either in a separate summons-answer pre-sequence or through turn-initial person reference. By making themselves available, the addressed recipients align with the proposed activity – similarly, by not taking a turn to respond to a FPP indication of a knowledge gap, other co-present students treat the addressed recipient as indeed the rightful 'owner' of the response slot. In this way, parties orient to the resolution of knowledge gaps as the responsibility of certain individual. These observations point to the possibility that indicating lack of knowledge may involve an analysis of who may be particularly likely to possess the targeted information (i.e. the maintenance of an "epistemic ticker" Heritage, 2012a, p. 25, 2012c, p. 386) in their group, or even in the whole classroom, as can be seen in Extract 19.

4.4.3 Securing availability and alignment

As illustrated in section 4.2.4, one routine context where lack of knowledge is addressed is represented by interactional environments in which participants are aligned to doing separate activities, such as writing their own answers in task sheets or notebooks. This means that the participants will have to negotiate the co-ordination of their on-going (different) activities and the incipient sequence. In extracts shown in sections 4.4.1 and 4.4.2, the selected recipients overwhelmingly signalled their availability for and willingness to contribute to

²⁶ Unfortunately, Mauri's face is off-camera here, but from another camera angle (see Figure 1), it can be observed that he lifts his gaze from his task towards Alma at approximately the same time as he makes himself verbally available (line 3).

the incipient sequence rather quickly (even if in Extract 17 Aulikki's participation was jeopardised by the simultaneous whole-class activity). In such contexts, it is not uncommon to see speakership transition to take longer than in the context of an on-going conversation so that other commitments may be coordinated with the incipient sequence. A case in point is the 1.2 second silence in Extract 19 which it takes for Mauri to signal his availability following Alma's summons, and which the two did not treat as a signal of any sort of trouble.

However, sometimes participants' engagement in different activities means that their alignment to resolving a knowledge gap may not be accomplished quickly and unproblematically but needs to be pursued through insert sequences (Schegloff, 2007). Pursuits of reciprocity or an answer can also be understood as practices through which participants negotiate whether the selected recipients really have an obligation (Stivers & Rossano, 2010a, see 2010b) to take part in the joint activity. As was shown in Extract 17, if next-speaker selection by gaze appears to fail to establish reciprocity, requesters have available other resources, such as address terms, which they can use to enforce that reciprocity. Sometimes they may even sanction the recipient for the lack of an SPP response, such as in the following extract in which the treatment of Susanna's information request, addressed to Inka, is delayed.

Extract 20. At least

STUDENTS ARE WRITING IN THEIR TASK SHEETS

			Sakari	Susanna	Inka
01	Susanna	LIFTS GAZE FROM DESK TO INKA			
02	->	<div style="border: 1px solid black; padding: 2px;"> mikä o ainakin <i>what's 'at least'</i> {TAPS INKA'S KNEE (1.5) </div>			
03	->	(1.5)			
04	Susanna ->	KNOCKS TWICE ON INKA'S KNEE			
05	Inka	-> SHRUGS AND PULLS CORNERS OF MOUTH DOWN, GAZE DOWN			
06		(1.0)			
07		o (--) o			
08	Susanna ->	MAKES A THROATY SOUND			
09		(0.8)			
10	Inka	URNS OVER AND MAKES A LOUDER THROATY SOUND			
11	Susanna	fjoo mä tiiänf <i>yeah I knowf</i> <div style="border: 1px solid black; padding: 2px;"> {BOTH SMILE AND LOOK AT SUSANNA'S NOTEBOOK </div>			
12	->	(mutta) (.) nii (.) mikä o niinku- <i>but (.) yeah (.) what's like-</i> {MUTUAL GAZE ESTABLISHED			

As the students are doing individual work, Susanna interrupts her writing, lifts her gaze from the papers on her desk and directs it towards Inka at line 1, thereby projecting a turn addressed to the latter. As this movement comes to completion, she indeed requests Inka to provide an English-language equiva-

lent of the word ‘ainakin’ (‘at least’)²⁷, at the same time reinforcing the recipient selection haptically, by tapping Inka on the knee (see image). As the latter provides neither verbal nor visible response but instead continues her on-going writing activity, after an approximately 1.5 second silence Susanna again knocks on Inka’s knee, this time twice and with slightly more energy. This kind of a physical prompt works to insist that Inka’s answer is conditionally relevant after Susanna’s question and, having become ‘noticeably absent’ (Schegloff, 1968) during the 1.5 seconds, is now being pursued.

Inka’s response to the pursuit is a stand-alone claim of insufficient knowledge, which she accomplishes by minimally shrugging her shoulders and turning the corners of her mouth slightly downwards while maintaining her gaze on her own task (at line 5).²⁸ This recipient action responds directly to the original information request, instead of treating the pursuit as a summons-answer sequence aiming to secure reciprocity, as Aulikki did in Extract 17, which led to Outi’s redoing the question. As such, they may be seen as orienting to differential degrees of responsibility for a non-response to a question: by responding directly to the earlier FPP request after a pursuit, the recipient treats herself as responsible for the prior non-response, whereas by treating a pursuit as a summons-answer sequence such responsibility is not assumed by the recipient.

Inka’s embodied claim of not knowing is nevertheless followed by Susanna’s guttural sound which is hearable as a somewhat pretended expression of frustration sanctioning Inka for lack of investment in the joint activity by first having ignored Susanna’s request (line 3) and then provided neither a knowing answer nor any account for her not knowing (line 5). Shortly after this, Inka finally turns towards Susanna and thus makes herself available. In doing so, she repeats the guttural sound, albeit in louder volume. The way this is smilingly received by Susanna (line 11) before the two establish a mutual orientation to Susanna’s notebook indeed treats these sounds as light-hearted banter. The business of resolving the knowledge gap may now continue (not shown here but see section 5.2).

In Extract 20, a routine technique of using gaze (and a haptic summons) to invite the recipient to participate in an activity achieved neither visibly nor verbally displayed alignment by the recipient with the activity. When gaze is used to select a recipient, possible problems may not necessarily manifest until the SPP response becomes delayed, unlike in situations where reciprocity is secured in a pre-sequence before the FPP information request is ‘out there’. In this case, Inka’s involvement was first pursued by reinforcing the haptic element of the

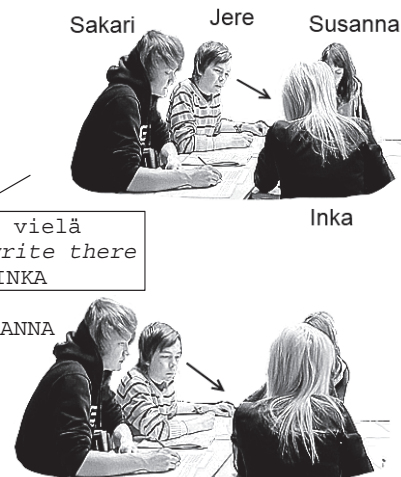
²⁷ Note how the simple formulation of ‘What is X?’ suffices to make clear that a translation of the Finnish language item ‘ainakin’ is sought, rather than its meaning.

²⁸ Inka’s verbal turn-increment at line 7, which precedes Susanna’s guttural sound, is unfortunately inaudible. It may be some kind of a ‘holding’ token (e.g. ‘wait’, or ‘just a second’), judging by the fact that Susanna does not terminate the sequence but instead sanctions *and* waits until Inka turns towards her at line 10. Had it been something to project non-committal to participating in the sequence, the fact that Inka does end up participating might have been treated as somehow surprising in the ensuing interaction, which it is not.

selection – a tap on the knee – which is a selection method that eliminates the possibility of the recipient not having seen the selection by gaze in the first place, as well as insisting that the recipient provide a response. Inka's subsequent action of responding directly to the request by claiming no knowledge conveys that she indeed had attended to it when it was presented. The subsequent guttural sound by Susanna can therefore be understood as sanctioning Inka's slow response to and lack of investment in Susanna's problem.

Students can also use verbal address terms to upgrade speaker selection and thereby pursue a delayed response to an FPP indication of lack of knowledge. This can be seen in Extract 21, in which Jere requests what to write as a task answer, first addressing it unsuccessfully to Inka by gaze and then checking the availability of another recipient, Susanna, before pursuing Inka's response by summoning her. Shortly before the focal sequence, both Jere and Susanna have been asking task answers from Inka, continuation of which activity is oriented to by Jere as he selects Inka to answer his request at line 1.

Extract 21. What else?



01 Jere -> mitä siihen pitää kirjottaa vielä
what do you still have to write there
 {GAZE TO INKA}

02 -> (1.0)

03 -> GAZE SHIFT FROM INKA TO SUSANNA

04 (2.2)

05 Jere -> °Inka°
 {LEANS FORWARD AND SHIFTS GAZE TO INKA
 {INKA LIFTS GAZE}

06 Inka -> GAZE TO JERE

07 Jere mitä muuta siihen pitää kirjottaa
what else do you have to write there
 (1.4)

08

09 Inka -> >noku< tässä oli tää what was the (.)
 >well like< there was this what was the

10 -> Stuart (.) <cure> (.) for it
 {JERE'S GAZE TO TASK SHEET, THEN TO COURSE TEXT}

Jere uses gaze to select Inka to respond to his enquiry about items that are 'still' ('vielä') needed for the task answer. Notice that the selection of a recipient occurs whilst the verbal construction of the turn is already underway, as Jere shifts his gaze directly from his text to Inka at about the same time as he utters the word 'kirjoittaa' ('write', see transcript image). However, Jere's information request receives neither an audible nor a visible response during the following

one second, as Inka keeps her orientation on the papers she has on her desk.²⁹ Jere then shifts his gaze to Susanna, fixing his body posture slightly, as if to check if she might be attending to the initiated activity. Such an action constitutes an invitation to Susanna to contribute to the sequence. However, as Susanna does not appear to attend to Jere's request in any way during the 2.2 second 'wait time' (line 4), he eventually turns back to Inka and summons her by using her first name (line 5). The summoning turn is not only prosodically stressed even though it is produced with a hushed voice, but is also delivered as Jere leans closer to Inka (see image), both of which features contribute towards making it a salient item. Inka, who has already begun to disattend to her course materials during the summoning, finally makes herself available to interaction by turning her head slightly towards Jere at line 6. As reciprocity has now been secured, Jere proceeds to re-deliver his request in nearly original format at line 7, essentially replacing the word 'vielä' with the word 'muuta' ('else'). This second 'go' secures a response which Inka begins at line 9, and the end of which is not shown in the extract (see also Extract 17 for a similar pursuit).

In the extract above, selection of recipient by gaze does not result in a response, which, after the availability of another student is checked, becomes pursued by upgrading the design of next-speaker selection from embodied (gaze) to verbal (summons). Stivers and Rossano (see also Stivers & Rossano, 2010a, 2010b, p. 53) argue that the way pursuits of response are designed indexes whether they treat a lack of response as sanctionable or as something that is a result of the design of the initial action. Thus, by modifying the design of an initiating action after a lacking response, a speaker treats the original design as at least partially responsible for the lack. On the other hand, pursuits may naturally be designed to have a sanctioning or insisting quality, which are ways to attribute the responsibility for the lack of response to the recipient of the initiating action. While selecting the recipient by means of verbal addressing following the failure of selection by gaze certainly represents a modified and upgraded version of the first selection, notice how the two formulations of information requests in Extract 21 (and Extract 17) are nearly identical compared to the first attempt. In this way, they may be seen to attribute responsibility to the recipient, even if the recipient herself does not do anything to so indicate when eventually displaying alignment (line 6).

The previous extract already illustrated that if the addressed recipient does not align with the initiated activity by providing a timely SPP response or a display of reciprocity, the requester may look for alternative resources for resolving the knowledge gap. As mentioned before, knowledge gaps are routinely resolved in environments in which the addressed recipients are either engaged with their independent task activities or conducting other talk when they are being recruited. These aspects can sometimes give rise to intricate choreographies of actions for securing the alignment of the participants to the same ac-

²⁹ Inka's face is unfortunately off-camera but, as far as the head position suggests, her attention appears to be on the desk during Jere's first request.

tivity. One solution to the situation in which the addressed recipient is found to be unavailable for the projected sequence is to consult another 'possible knower', as happens in the following extract (and as implicitly done by Jere's invitation through gaze shift to Susanna in the previous extract). In the following extract, Esteri turns to Sylvi to initiate talk, but finds her to be engaged with Alma, who is commenting on a humorous bit of text in the course book. Esteri then presents her request to Tuuli, whom she observes is not taking part in the telling sequence between Sylvi and Alma.

Extract 22. The origin of rats

```

01 Alma      Sylvi
02 Sylvi      mm?
               {ALMA GAZE TO TEXT; SYLVI GAZE TO ALMA
03 Alma      what would=
04            =think [if I would come to your house and then, (.)
               {ESTERI LIFTS GAZE AND TURNS TO SYLVI
05 Esteri    -> [hhey umh- (.)
               -> {S, A & T GLANCE AT E; S GAZE BACK TO A

```



```

06 Alma      err wipe my- (0.9)
               -> {ESTERI GAZE SLOWLY TO TUULI; TUULI'S GAZE TO DESK
07            [greasy fingers upon the tablecloth
08 Esteri    -> [.tsk uh where were the: (.)
               {TUULI'S GAZE TO ESTERI
09            uhh rats brought from to °Europe°
10 Tuuli     SHRUGS HER SHOULDERS
11            (1.7)
12 Esteri    -> SHIFTS GAZE TO SYLVI
13            where were the (.) the: umm (0.6)
               {ALMA'S GAZE TO ESTERI
14            rats that caused the (.) umm <plague> (0.7)
               {SYLVI'S GAZE TO ESTERI
15            where were they brought °from°
16            (0.9)
17 Sylvi     India
18 Esteri    (°India°)
19            BEGINS WRITING

```

Esteri addresses Sylvi by shifting gaze towards her and using 'hey' as an attention-seeking device at lines 4-5 (see image) at a point when the latter is already engaged with Alma, who is joking about bad table manners based on Stuart time dinner rules described in the course text. Notice how 'hey', by not unambiguously specifying the addressed recipient on its own, accomplishes all three group members to momentarily shift their gaze to Esteri in order to see whether

they are being addressed (see transcript image). By this time, Esteri has already resolved the overlap by cutting off her turn, thus orienting to Alma's being entitled to proceed uninterruptedly with her telling, which she had begun first (and the two other group members as having right to being engaged with that telling). However, as Alma proceeds with the telling at line 6, Tuuli has shifted her gaze from Alma to her own course texts. Esteri subsequently interprets this as a sign of non-attendance to Alma's telling and directs her gaze to Tuuli while requesting the origin of the rats that caused the plague (lines 8-9). This selection-by-gaze is also recognised by Tuuli, who returns the gaze to Esteri during the formulation of the turn; notice how there is a small pause in Esteri's talk after 'the' (line 8) during which mutual gaze is established, which gives Esteri a kind of a visual 'go ahead' to complete her turn.

As Tuuli eventually claims insufficient knowledge to Esteri's request by shrugging her shoulders at line 10, it means that the knowledge gap is left unresolved. By this time, the telling sequence between Alma and Sylvi has come to a completion, and the two speakers are no longer engaged in their dyadic conversation. Esteri thus returns to check if Sylvi, the student she originally addressed, possesses the required bit of knowledge (lines 12-15), which she displays (line 17), and which Esteri accepts as valid and relevant for her purposes (lines 18-19).

What interactional evidence is there to support the analysis that Esteri's request about the origin of the plague-causing rats addressed to Tuuli was designed to do 'the same' action as her previous aborted turn ('hhey umh') at line 5? Firstly, between these turns, Esteri does not orient to terminating the initiated turn-by-turn talk e.g. by going back to her individual activity involving the course materials. Instead, the next action she visibly takes is a slow gaze shift towards Tuuli, whom she then addresses the request. Moreover, the second request itself is unaccounted for and thereby not marked as any kind of topically unrelated sequence, which would be preoccupied with e.g. 'just talking' or 'killing time' while waiting for Sylvi to become available. Thirdly, as Esteri eventually does turn back to Sylvi, following Tuuli's claim of K- epistemic status, she continues by soliciting information for the 'same' knowledge gap than she did with Tuuli (albeit adding the reference to the plague this time). This suggests that her involvement with the group is motivated by a search for resolution to that very knowledge gap. This is further indexed by the fact that Esteri does not pursue any other matters with Sylvi but instead goes back to her independent task after she receives a K+ positioned response to her request at line 17.

Extract 22, as other extracts in this section, illustrates that a 'student group' may on occasion be difficult to conceptualise as a single unit that engages in one focal activity, especially in circumstances when the students are not working on a 'group task' per se. Previous research has observed that multi-party talk between four or more speakers has the possibility of splitting up, or 'schisming', into two or more separate interactions both in the context of everyday conversation (Aoki et al., 2006; Egbert, 1997; Sacks et al., 1974, pp. 713-714), but also in classrooms (Lehtimaja, 2012). Besides the schisming of whole-class talk, classrooms are physical locations which routinely involve multiple simultaneously

on-going *activities*, as demonstrated by Jones and Thornborrow (2004) and Koole (2007). In the data for this study, knowledge gaps are resolved in side sequences to both independent activities (e.g. writing a task answer) and talk. These other on-going activities need to be co-ordinated so that alignment to resolving the incipient knowledge gap may be achieved. Such interactional contingencies sometimes make the interactional work for securing reciprocity clearly visible.

4.4.4 Responses by non-selected recipients

Most of the time when a specific recipient is selected to respond to an indication of lack of knowledge, either by embodied means or verbally, that person will indeed be the holder of the next turn. Cases where this does not are few and far between in the data. In this section, two such cases are discussed from the point of view of the normativity of the selection of 'possible knower' versus the preference for the production of a knowledgeable answer in information request sequences.³⁰ In these two extracts, recipients who have been selected to answer are one way or the other treated as having primary access to the targeted knowledge – even if they do not get to display that knowledge 'first'. Conversely, answers provided to information requests by unaddressed recipients may be treated as problematic and uninvited in the sense that they are subjected to the approval of the originally addressed recipient.

The first extract involves a group of students beginning a task sequence on Stuart time medical cures, using the course text to answer a question how smallpox was treated in those days. As the teacher is coming to the end of the task instruction, Alma addresses a knowledge gap to Tuuli; however, Sylvi jumps in and self-selects to take the next turn and provides what is treated in the interaction as a proposal rather than a full-fledged K+ response itself.

Extract 23. Smallpox

01 T now yeah you can start working (0.8) the Stuart. (0.9)
 02 a:nd (.) the idea here is to, (0.6)
 03 finish [work (0.8) to[day?
 04 Alma -> [Tuuli?
 05 Tuuli -> [mmm
 06 [TUULI AND SYLVI SHIFT GAZE TO ALMA
 07 Alma -> ↑mi[ten (----)
 ↑how (----)



³⁰ The interested reader is directed to Stivers and Robinson (2006), who investigate the relative strength of preference for an answer versus the preference for the selected speaker to provide that answer in everyday (American English) interaction.

08 -> (1.3) / TUULI SLOWLY BEGINS TO SHIFTS GAZE TO HER TEXT
09 Sylvi -> onkse siis se että (.)
is it then that one that
10 erm they took the (.) children to visit the (1.1)
11 tyyppi jolla oli,
guy who had,
12 (1.0) / TUULI SHIFTS GAZE FROM HER TEXT TO SYLVI
13 Tuuli -> niin se on pakko olla se koska ei [täällä lu-
yeah it has to be that one because here it doesn't sa-
14 Alma { 'CIRCLES' TEXT
[mutta=
but=
15 =,täällä o=
=i here is=
{TAPS THE BOTTOM CORNER OF HER TEXT
{TUULI GLANCES AT ALMA'S TEXT
16 Tuuli =se o jonnekki <tobacco>
it's for something about tobacco
{GAZE SHIFT TO OWN TEXT
17 (2.0) / TUULI EXAMINES TEXT
18 Tuuli että, (0.8) tupakka tekee nuo=
that, tobacco does those
{PLACES PENCIL ON TEXT, GLANCES ALMA
{ 'DRAWS' A WAVE WITH PENCIL
19 Alma =aa nii
=oh okay
20 (1.4)
21 Tuuli -> niinno mun mielestä-
well yeah in my opinion-
22 emmää kyllä löyää mitään muuta ainakaan että jossei-
at least I can't find anything else so that if it's not-
23 LIFTS GAZE TO SYLVI

At lines 4-5, Alma verbally summons Tuuli, who makes herself available for the projected activity by means of a verbal token ('mmm') and shifting her gaze to Alma. At the same time, Sylvi also attends to the sequence initiator, placing herself as a 'listener' for the next turn (see transcript image). As Alma now has the attention of two group members (Esteri, the fourth student on the right and off-image, maintains her engagement with her own task), she takes a barely audible turn beginning with the interrogative word 'miten' ('how'), suggesting she may be identifying lack of knowledge by formatting a turn to index K-epistemic stance. This is followed by an approximately 1.3 second silence during which the summoned recipient, Tuuli, slowly begins to shift her orientation to her course text. The silence ends when Sylvi presents a candidate answer at lines 9-11, formed structurally by using interrogative morphosyntax to preface a slightly modified repeat of a stretch of text found in the course material. However, based on Sylvi's head orientation (her back is to the camera) this turn appears to be addressed to the selected 'possible knower', Tuuli, instead of the requester, Alma. Following a shift of orientation to the course text (line 12), Tuuli then takes a turn which essentially confirms the knowledge proposed by Sylvi. It does so by the logic of exclusion: as the relevant location in the text does not contain any other items which would qualify for an answer, Sylvi's

proposal 'has to be' the correct answer to Alma's request. The turn is overlapped by Alma, who at lines 14-15 points to a different location in the text and proposes another bit of text as a possible answer, which Tuuli nevertheless rejects by denying its relevance for the topic of 'smallpox' (lines 16-18). As this is accepted by Alma (line 19), Tuuli once more repeats her acceptance of Sylvi's original and uninvited answer over lines 21-22.

In this case, even if an unaddressed recipient provides the first response turn to an indication of lack of knowledge, the uninvited response is nevertheless designed so as to respect the addressed recipient as having primary access to the knowledge domain being discussed. First of all, the response itself is only delivered after a noticeable (1.3 second) silence, allowing ample time for the addressed recipient to take a turn (whose shift of gaze away from the requester instead projects her not to be doing so). Furthermore, the uninvited response by Sylvi is also designed as a *proposal* for the addressed recipient to confirm rather than a 'full' K+ positioned claim to knowledge, both in terms of the epistemic stance indexed by grammatical resources³¹ and gaze direction / head orientation.


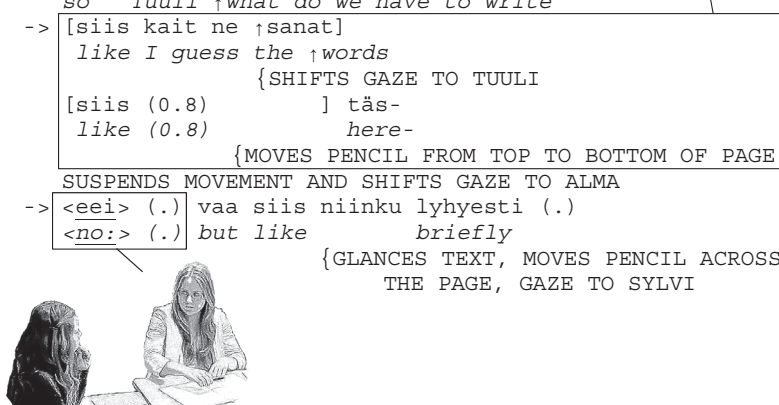
Interestingly, it appears that Tuuli does not treat herself as having quite as privileged an access to the knowledge targeted by Alma's request as the two other speakers orient to her. This is indicated by the delay of her answer after the request during which time she instead orients to her text at line 8, which projects trouble in receiving an immediate, K+ positioned answer (see also Extract 11). Second, her eventual answers which ratify the validity of Sylvi's proposal (lines 13 and 21-23) do not claim to be in 'possession' of knowledge; rather, they ratify by means of providing an inference based on having consulted the course text (and having found no other plausible options).

Besides uninvited recipients subjecting their 'knowing' responses as proposals for the invited recipients to confirm, the invited 'knowers' may also reject uninvited contributions. The next extract comes from the same group as Extract 23 and takes place in a similar context in which the teacher is just about to finish task instruction when one group member identifies a knowledge gap, this time concerning the teacher's instructions. The nature of the task, which is being clarified by Sylvi, involves writing a summary of a previously completed writing task.³² Again, Tuuli is being selected to provide an answer, and this time she begins her turn without delay but is overlapped by Alma, an unaddressed student to proffer an answer.

³¹ Interrogative syntax can be seen to index a steep epistemic gradient (see Heritage, 2012a, pp. 6-7) between an unknowing speaker and a knowing recipient. However, as pointed out by Heritage (*ibid.*), interrogative morphosyntax does not always mean information is being requested, but rather, it offers a 'secondary lamination' to, or a 'fine tuning' of real-world distribution of knowledge, i.e. epistemic status. Keeping this in mind, Sylvi's turn at lines 10-11 proposes knowledge but uses interrogative morphosyntax to convey sub-ordinance of the proposed knowledge to Tuuli's pending opinion. Furthermore, the particle 'siis' (~'then', 'so') here constructs the knowledge display as a reasoning based on the text (see also VISK §807; §1132).

³² See also Extract 3 for how the same instructions occasioned a differently formulated knowledge gap in another group.

Extract 24. Summary

- 01 T so you can write it down here. (.)
 02 you remember what you wrote about. (.)
 03 sum up your essay. (.) here? Tuuli
 04 Sylvi -> °(emmä) oikein tajua° Alma
 °(I don't) really get it°
 05 Esteri GAZES AT SYLVI
 06 -> emmä (tajua)
 I don't (get it)
- 
- 07 (1.6) / SYLVI'S GAZE TO TUULI
- 08 Sylvi -> siis Tuuli ↑mitä meidän pitää kirjottaa
 so Tuuli ↑what do we have to write
 09 Alma -> [siis kait ne ↑sanat]
 like I guess the ↑words
 {SHIFTS GAZE TO TUULI
 10 Tuuli [siis (0.8)] täs-
 like (0.8) here-
 {MOVES PENCIL FROM TOP TO BOTTOM OF PAGE
 11 SUSPENDS MOVEMENT AND SHIFTS GAZE TO ALMA
 12 Tuuli -> <eei> (.) vaa siis niinku lyhyesti (.)
 <no:> (.) but like briefly
 {GLANCES TEXT, MOVES PENCIL ACROSS
 THE PAGE, GAZE TO SYLVI
- 
- 13 ni mitä me ollaan kirjoitettu tähä.
 like what we have written here
 {'SLAPS' THE TEXT
 14 (1.2)
 15 Tuuli -> <tiivistelmä>
 <a summary>
 {'SQUEEZES' HANDS CLOSER TOGETHER
 16 (0.7)
 17 Sylvi -> mmm

Sylvi appears to indicate a knowledge gap already at line 4 by explicitly claiming non-comprehension of the teacher's task instruction. This claim of K-epistemic position not only relies on the immediately preceding element in (whole-class) talk to make it understandable but is a somewhat open invitation to contribute a knowing response rather than make one conditionally relevant (cf. Stivers & Rossano, 2010b, p. 53). However, as it only receives what is hearable as a similar claim of non-comprehension from Esteri (line 6), Sylvi modifies the design of her action. The reformulated request first nominates Tuuli and then identifies the knowledge gap through interrogative morphosyntax as what the students need to write for the task. When Tuuli begins to produce an answer both verbally and by delineating an area in the text in front of her (see image), she is overlapped by Alma, who provides what is designed as a hedged 'guess' as a response to Sylvi's request, directing it by gaze shift to Tuuli (line 9). Once in the clear, Tuuli interrupts her answer turn both by cutting off the verbal turn

component, as well as suspending the indication of the relevant location in the text by stopping her hand mid-air (lines 10-11, second image). She then moves on to reject Alma's answer with a highly salient, unmitigated 'no', before presenting her own answer as a diagonally opposite (and correct) option through the conjunction 'vaa' ('but') over lines 12-15. Simultaneously to the verbal production of her response, Tuuli identifies a part of the course text as relevant for the task by moving her hand above it. The answer culminates in the provision of a Finnish-language translation of the task type (summary) expected from the students. This knowledge display is addressed to Sylvi, who receives and accepts it at line 17.

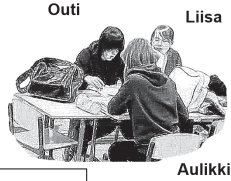
To recap, in Extract 24 an unaddressed recipient of an information request provided a 'knowing' answer in overlap with the addressed recipient. Similarly to Extract 23, this uninvited contribution was designed as a hedged candidate answer submitted to addressed to the 'possible knower' identified by the request instead of being given as an answer to the requester. However, the two extracts illustrate different ways in which the 'possible knower' may subsequently treat the information being offered for her validation. Whereas in Extract 23 Tuuli accepted Sylvi's candidate answer and displayed what was arguably a less knowledgeable epistemic stance than was projected by the requester, the opposite happened in Extract 24. Albeit in different ways, in both extracts all parties nevertheless orient towards the selected answerer as being entitled to either confirm or reject the validity of an uninvited answer, which – together with the fact that these uninvited answers were in the first place addressed to the selected answerers – suggests that the selection of a specific recipient to resolve a knowledge gap has normative underpinnings even in situations when knowledge is not received from the party whom it is originally requested. Similar normativity of recipient-selection is oriented to in situations in which uninvited answers are produced as humorous contributions, as in Extract 16. Taken together, these constitute yet another way in which lack of knowledge is taken to be the concern of somebody in particular rather than just anybody.

4.4.5 Addressing knowledge gaps to more than one recipient

When initiating a sequence with an indication of lack of knowledge, students can also signal through their conduct that more than one recipient is invited to address it. This is a selection practice that occurs less frequently than successive rounds of selecting a 'possible knower' simply by selecting a second recipient following the discovery that the first addressed person is either engaged or 'unknowing', such as in Extract 22. To accomplish simultaneous selection of multiple recipients, students have at their disposal similar resources to when selecting a single recipient. Extract 25, in which Tuuli checks whether she has all the necessary items in her task answer, addressing her request to Sylvi and Alma, illustrates how gaze can be used to doing this. The fourth group member, Esteri (on Sylvi's right side, not shown in image), is neither addressed by Tuuli nor does she orient to the activity at any point during the sequence.

which case one of the parties will routinely self-select to take the next turn (cf. Sacks et al., 1974). However, in situations where the first party to take a turn claims insufficient knowledge, the knowledge gap remains unresolved, which may be enough to motivate a knowledge display by the remaining party. In the following extract, the response by the second invited recipient (Aulikki) is delayed. This leads to a reminder by the two other students of Aulikki's obligation to display her knowledge regarding the queried topic, in this case the meaning of a 'convent'.

Extract 26. Convent



01 Liisa LIFTS GAZE FROM THE DESK
 02 -> ↑mikä o convent
 ↑what is a convent
 -> {TURNS GAZE BETWEEN AULIKKI AND OUTI
 03 (0.8)
 04 Outi LIFTS LEFT SHOULDER AND TURNS HEAD SLIGHTLY TO LEFT
 05 -> (2.0)
 06 Liisa -> Aulikki?
 07 Aulikki °häh°
 °huh°
 {GAZE TOWARDS LIISA
 08 Liisa -> tiiäksää (mi[kä xx o) convents
 d'y know (what xx is) convents
 09 Outi -> [>tiäksä mikä o< convents
 >d'y know what is< convents
 10 Aulikki SHAKES HEAD AND TURNS BACK TO HER TEXT

The three students are working independently and attending to their written material when Liisa lifts her gaze at line 1 and requests the meaning of the word 'convent', thus making a response conditionally relevant (Schegloff, 1968, 2007). Liisa's gaze appears to be directed somewhere between the two other speakers, which indexes no unambiguous visible selection of any one student to provide a knowing response, but instead makes their self-selection the relevant next action.³³ The next speaker to take a turn is Outi, whose minimal shoulder shrug at line 4 constitutes an embodied claim of insufficient knowledge to respond to the request (see also extracts 3 and 22). As Outi's epistemic status regarding the meaning of 'convent' has been interactionally displayed, and the knowledge gap remains unresolved, the only resource left in the group is Aulikki. However, as Aulikki maintains her orientation on her own task on the table for 2.0 seconds – well beyond what it regularly takes for speakership to transfer from one party to another – Liisa begins to pursue Aulikki's response by summoning her at line 6. When Aulikki makes herself available for turn-by-turn talk, Liisa and Outi collaboratively deliver a reformulation of the original request. Compared to the initial request, the second request explicitly topicalises Aulikki's epistemic status. Such an upgrade of turn design puts Aulikki's possible knowing or

³³ Furthermore, no mutual gaze between the parties exists at the time when the request is delivered, a factor that complicates selection-by-gaze.

not knowing in the focus, orienting to it as something whose conditional relevance still holds, i.e. that it should have been displayed earlier but is now being pursued as it was not timely produced. Eventually, Aulikki too claims insufficient knowledge by shaking her head, which terminates the sequence for the time being.

Whereas in Extract 25, an information request was addressed to two speakers by shifting gaze between the recipients, in Extract 26 it was the *lack* of such a next-speaker selection technique which made self-selection relevant. The evidence for the selection of two recipients can be seen in the fact that a) Aulikki is summoned to produce an answer after delay, b) the pursuing request has a different turn design insofar as it explicitly enquires after Aulikki's epistemic status, and thereby treating her knowledge display as missing, and c) is produced nearly simultaneously by both Liisa and Outi, suggesting that both of them treat the lack of Aulikki's knowledge display as pursuable.

4.4.6 Summary

This section has investigated how students address FPP positioned indications of lack of knowledge to other classroom members to resolve, and how this may differ from what is known about the ways in which next-speaker selection works in everyday conversation (see Lerner, 2003; Sacks et al., 1974). Perhaps the most basic observation regarding this is that most of the time knowledge gaps are indeed addressed to a specific 'possible knower' as opposed to just anybody. As the extracts analysed so far have illustrated, knowledge gaps are frequently addressed to a specific student within a single student group, even if other students, or the teacher, may subsequently become involved, such as in cases when the first recipient is found unable to provide knowledge to the query. This means that the participation framework of sequences addressing lack of knowledge is often not the same as static configuration of the student group in which the requester is seated.

As regards the methods for recruiting 'possible knowers', students have at their disposal a variety of embodied and linguistic resources, such as gaze, body orientation, person reference, etc. In the data, inviting the knowledge display of a particular participant is interactional work that is primarily accomplished by embodied means, i.e. by directing gaze and/or shifting body orientation towards that participant. Particularly in contexts in which the participants do not sustain mutual focus before the introduction of a knowledge gap in talk but are, for example, working on their own independent tasks, the recruitment of a recipient routinely involves the coordination of other on-going activities with the incipient sequence. For this reason, finding a 'possible knower' is a wider operational domain to next-speaker selection, and often involves repair sequences which are marked as addressing a problem of hearing, or of not having attended to the presented request. In this respect, the beginning of an incipient sequence also constitutes the sequential location in which the parties engage in inherently moral negotiation on the relative ranking and importance of the different on-going activities, and the responsibility of the ad-

dressed recipient to suspend their own activity and participate in the sequence being initiated by an indication of lack of knowledge (e.g. extracts 17 and 20).

Such coordination of multiple activities is also at stake when selection-by-gaze does not secure uptake but instead the requester pursues reciprocity or a delayed response from their addressees, for example by upgrading their previous selection haptically (e.g. tapping on the recipient's body) or verbally (summoning). Verbal addressing is also often employed in situations in which the addressed participant sits further away from the sequence initiator, for example in another group, or when the gaze of either participant is used to conducting other actions, such as making the classroom texts relevant for the formulation of the knowledge gap. Sequentially speaking, the selection of a 'possible knower' overwhelmingly takes place either in embodied form in pre-beginning position (see Schegloff, 1996b) or as verbal turn-initial components, that is before any actual knowledge gap is even formulated.

Besides a finding that knowledge gaps are addressed to a particular student, it has been noted that at least sometimes, they are addressed to said students for epistemically motivated reasons. These reasons are perhaps most lucidly manifested in situations where what is treated as a knowledge gap concerns or otherwise relates to a knowledge display that has occurred just before (see section 4.2.4.2) or earlier in the lesson (Extract 9). As we saw, in these cases, knowledge gaps were addressed to those students who had earlier displayed knowledge. Moreover, it appears that invitations to resolve a knowledge gap seem to accumulate to certain students, although the extent of such accumulation has not been quantitatively established for the purposes of this study. Nevertheless, the routine-like property of knowledge gaps being addressed to someone provides a mechanism for the formation of macro-level socio-epistemic identities such as that of a 'helper', a student whom to turn to for advice.

Similar orientation to knowledge gaps being submitted to a specific individual to resolve takes place when an unselected-to-answer student presents her response as try-marked for the approval or rejection of *the selected recipient*, thus orienting to the selected recipient as having primary epistemic status regarding the topic of the query. It may well be that this orientation relates to temporality, in the sense that it is strongest immediately after a request has been presented and a specific speaker selected to provide an answer, which makes an uninvited answer more sanctionable at this stage (for a related argument, see Stivers & Robinson, 2006). On the other hand, the more time passes after an indication of lack of knowledge so that a knowledgeable answer by the selected speaker is delayed, other contributions may be subject to fewer sanctions by the projected 'possible knower'.³⁴ Although further data analysis involving these situations is needed to establish possible grounds for such a preference, it would mean that the epistemic positioning of a 'possible knower' quickly diminishes if that speaker does not take a turn and confirm that she in

³⁴ In this sense, the preference for progressivity of a sequence is stronger than the preference for a selected speaker to respond, as described by Stivers and Robinson (2006).

fact 'knows' what is being asked from her. This might help to explain why pursuits of a response may be upgraded to specifically enquire about epistemic status (see Extract 26).

4.5 Identifying a knowledge gap

4.5.1 Introduction

When students initiate sequences by indicating lack of knowledge, a standing task concerns the identification of the nature of the knowledge gap for which help is being sought. This involves two related interactional sub-tasks. First, a K-epistemic status regarding a knowledge object needs to be conveyed or otherwise implicated. The degree of 'unknowingness', which may be re-negotiated at any point during the incipient sequence, is a factor that relates to determining whether an FPP knowledge gap is treated as being concerned with requesting information or confirmation (of some information). Secondly, the students will also need to express accurately enough 'for all practical purposes' (Garfinkel, 1967) what exactly the knowledge object is that they are targeting, or do not 'know', in order for the recipient to be able to resolve the knowledge gap. This section focuses on ways in which both tasks – displaying K-epistemic status and detailing the nature of the knowledge gap – are accomplished.

In the data, students convey lack of knowledge in FPP position by assembling together various resources, such as the lexico-morphosyntax of the two available languages (Finnish and English), as well as physical, embodied and conversational resources. Even though there are some very conventionalised usage functions for certain linguistic forms, to the degree that language typologies have a basis for equating specific lexico-morphosyntactic structures with the functional category of 'questions', it does not mean turns-at-talk which employ these structures are necessarily treated as being concerned with requesting information. Indeed, there are crucial epistemic and pragmatic factors which participants draw on locally in order to ascribe action to turns-at-talk (cf. Heritage, 2013; Levinson, 2012). In research on pragmatics, such a lack of fit between grammatical form and conversational function, as embodied by so called 'indirect speech acts' (Searle, 1975) has constituted a focal area of interest. Similarly, conversation analytic studies have illustrated how interrogative morphosyntax can be used to conducting actions which are not preoccupied with seeking new information, but can involve, for example, asserting information, challenging, etc. (Heritage, 2002, 2010, 2012a; Koshik, 2002a, 2003). Conversely, and as will be shown in this section, resolution to a knowledge gap can be invited through a range of linguistic formats indexing K-stance as well as embodied, task-relevant conduct.

The remainder of this section describes different means for identifying knowledge gaps (research question 1). Besides showing how these resources are used in interaction, analytical interest will be paid to what types of gaps these

resources may be targeting, how ‘unknowing’ epistemic status they are used to indexing, and relatedly, what sorts of knowledge displays they invite and receive. Even if the identification of a knowledge gap routinely involves the assembling together of different semiotic resources, this section has been organised so that it begins with a description of the most common morphosyntactic formats found in the data, wh-interrogatives (and their Finnish equivalents) and polar interrogatives, which have previously been identified as explicit ways of conveying an unknowing epistemic stance (see Heritage, 2012a). After that, the focus of attention will shift to more ‘off record’ ways of making a K- status visible and inviting the provision of information, such as declarative morphosyntax, as well as some practices that rely on mobilising sequential and embodied resources in specific task contexts, such as withdrawal from taking a turn and looking over another student’s shoulder.

4.5.2 Wh-interrogatives

A frequently observed way to indicate lack of knowledge through an FPP positioned turn is to use interrogative morphosyntax, either in Finnish or English.³⁵ One commonly employed linguistic formatting for this action is ‘What is X’³⁶, where X identifies a referent, such as an individual word in the linguistic environment as problematic and requests either a definition or a translation of the unknown item. Consider the following fragment of interaction, the complete sequence of which has been shown as Extract 12.

Extract 27. Dagger

```

16 Sakari    <da[ggeri> ]
17 Inka     ->    [what is] a dagge::r
                {GAZE TOWARDS SAKARI; SHIFT TO SUSANNA
18 Susanna -> it is an (.) [err (.) th]at kind of,
19 Sakari  ->    [knife      ]
                {'STABS' WITH RIGHT HAND}
20 Inka     [(net) ]
21 Susanna -> [knife,]

```



In Extract 27, Inka uses the ‘What is X’ format to query the meaning of ‘dagger’, a word that has just been introduced in talk. Both addressed ‘possible knowers’ contribute by providing a knowledge display in the form of identifying a more general alternative for the word, drawing on English and embodied resources.

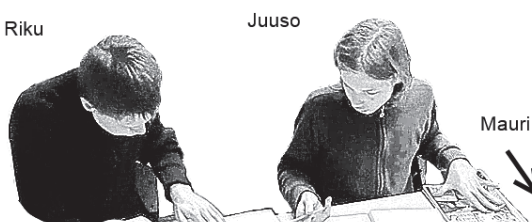
³⁵ Speaking English as a second/foreign language, the students’ turns may sometimes have a slightly different word order to those produced by ‘native’ English speakers. This may, at least theoretically, complicate recognising what grammatical resources are being drawn upon to indicate a lack of knowledge, not only for (or even in the first place) the analyst but also for the participants. Insofar as this occasionally produced ‘non-nativeness’ resembles comparable linguistic/action formats in Finnish, the actions conducted through it may find their recognisability, at least partly, in the students’ shared L1 Finnish speakership.

³⁶ In Finnish, this often takes the form of ‘Mikä on X’ or ‘Mikä X on’.

Susanna's response, which employs a clausal explanation, even makes this relationship between the two items clear by defining daggers as 'that kind of knives. Sakari's one-word turn, accompanied by an embodied stabbing gesture (line 19), is delicately timed, as Susanna's turn is momentarily perturbed following the beginning of an 'It is' formatted clause.

'What is X' format can also be used to request information other than the meaning of single words or expressions. In the following extract, which takes place as the teacher has just finished providing task instruction, Juuso requests an answer to one of the task questions they are to be working on by using wh-interrogative syntax and identifying the number of the question.³⁷

Extract 28. What is the first answer? Riku



01 Juuso TURNS TO LOOK AT RIKU'S TASK SHEET
 02 -> what is the (.) first-
 {POINTS AT RIKU'S TASK SHEET
 03 SHIFTS GAZE TO OWN PAPERS
 04 -> (2.2)
 05 Mauri -> he discovered that the- (.)
 {JUUSO'S GAZE TO RIKU'S TASK, THEN TO MAURI
 06 >that the blood in the human body< (.) err, (0.6)
 07 circulates.
 08 Juuso DOES A MINIMAL NOD AND BEGINS TO WRITE

Following the suspension of independent task activity, Juuso addresses his incipient turn to Riku, who is sitting next to him, by gazing and pointing at Riku's task sheet (see transcript image). He then uses wh-interrogative morphosyntax to take a K-epistemic stance regarding a knowledge object, which he identifies by coordinating linguistic ('first'), embodied (pointing and gaze) and artefactual (Riku's task sheet) resources. Thus, what emerges as a 'request to share a task answer' is in effect a complex arrangement of a variety of semiotic and sequential resources, of which the verbal mode is but one. This can be seen in how 'the first' (line 2) is eventually 'enough' to be taken to refer to the first question in the task. However, establishing reciprocity appears to be somewhat problematic in this sequence, and as Riku's answer becomes hearably delayed (line 4), Juuso again shifts his gaze towards Riku's task sheets, an action which projects the initiation of a pursuit of his response. However, simultaneously Mauri, who is sitting opposite to Juuso (off-camera), begins a response to Juuso's information request in the form of reading aloud his answer, which itself is a paraphrase of the course text which the students have been given. By providing an uninvited

³⁷ The question to which an answer is being requested is 'What did the Englishman William Harvey discover?'

tween the knowledge gap and the pedagogic task.³⁹ During this second insert expansion (cf. Schegloff, 2007), the participants re-negotiate what kind of a SPP response is expected from Jouni - and by implication what exactly constitutes the knowledge gap in the first place. For this work to render the request 'answerable', the students rely heavily on the pedagogic artefact in which the unknown word appears: at line 7, Jouni draws the two parties' focus to the task sheet as he begins to examine it and invites Paavali to indicate the specific task item, which he does by pointing at line 10 (see transcript images). Note how the orientation towards securing a knowing response is mutual, as the requester, Paavali, also provides his candidate answer to the task in the form of a list of countries 'occupied' by England (lines 11, 13). In overlap with this announcement, Jouni reciprocates and tells which countries ('underlined') he has added in his answer. Interestingly, these actions turn the epistemic tables to some extent, as the nature of the knowledge gap is being renegotiated from a word meaning related request to an enquiry of what the addressed recipient has answered in his task sheet. Along this development, Paavali's epistemic position has also undergone a change: a sequence that began from a fairly 'unknowing' epistemic stance, indexed by interrogative morphosyntax, has transformed into an announcement of own task-answer and an invitation to Jouni to 'match them up' with his answers.⁴⁰

Besides relying on English morphosyntax, students routinely (and somewhat more often) use similar linguistic constructs in their mother tongue, Finnish, to indicate a K- epistemic stance regarding various types of knowledge objects. Consider the following three examples:

Extract 30. Convent (part of Extract 26)

```
01 Liisa      LIFTS GAZE FROM THE DESK
02           -> ↑mikä o convent
              ↑what is a convent
              -> {TURNS GAZE BETWEEN AULIKKI AND OUTI
03           (0.8)
04 Outi      LIFTS LEFT SHOULDER AND TURNS HEAD SLIGHTLY TO LEFT
```

³⁹ Schegloff (2007, pp. 97-114) distinguishes between two types of insert expansions to a base adjacency pair on the grounds of whether they address the FPP or the SPP of the adjacency pair. While 'post-first insert expansions' are essentially repair sequences addressing some trouble in the preceding talk (FPP), 'pre-second' are insert sequences which the parties conduct to address issues related to the projected SPP. Schegloff notes (p. 100) that when the two types occur in the same sequence, post-firsts tend to precede pre-second, an observation that also holds for 'occupy'.

⁴⁰ It could be argued that at line 12 Jouni is still providing a straightforward definition for 'occupy', as he begins his turn with *it is*, but Paavali's announcement makes him change his answer. However, as Jouni begins the verbal part of his turn, he simultaneously already turns the page in his task sheet and takes out the text which he eventually presents to Paavali at line 14. This suggests that 'it is' is already related to, and preparatory for, this action. Note also how Jouni's eventual SPP response *avoids* doing an explicit claim of knowing or providing a stand-alone answer, but instead announces what he 'wrote', thereby marking it as a personal answer.

Extract 31. At least (part of Extract 20)

01 Susanna LIFTS GAZE FROM DESK TO INKA
 02 -> mikä o ainakin
 what's 'at least'
 {TAPS INKA'S KNEE
 03 (1.5)
 04 Susanna KNOCKS TWICE ON INKA'S KNEE
 05 Inka SHRUGS AND PULLS CORNERS OF MOUTH DOWN, GAZE DOWN

Extract 32. What was that highwayman?

01 Liisa STOPS WRITING, SHIFTS GAZE AND LEANS TOWARDS AULIKKI
 02 -> .hh (.) †mikä se highway man °o°. *.hh (.) †what °is° that highwayman.*
 03 Aulikki †hmh
 04 Liisa -> mikä se highway man °o° *what °is° that highwayman*
 05 Aulikki -> öö se oli niinkö (.) varas *err it/he was like (.) a thief*
 06 Liisa SHIFTS GAZE TO DESK AND CONTINUES WRITING

In Extract 30, the students are working independently when Liisa indicates a knowledge gap by requesting in Finnish the meaning of the English-language word 'convent', which appears in the course text. Liisa's turn, which employs a 'What is X' morphosyntactic design delivered with a turn-initial high pitch, invites the provision of a Finnish-language definition or an explanation of the problem word. However, here, Outi responds with an embodied claim of not knowing the answer.

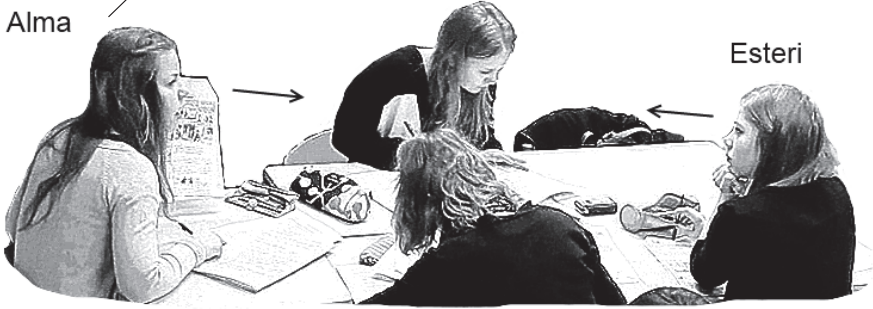
Conversely, in Extract 31, Susanna interrupts her writing activity to request an English-language equivalent of the word 'ainakin' ('at least'), the initial syllables of which she prosodically emphasises. After no uptake appears forthcoming, she pursues Inka's response, which is eventually provided in the form of an embodied claim to no knowledge, similar to Outi in the previous extract. These claims of insufficient knowledge in extracts 30 and 31 further illustrate actions which treat the provision of a no-context, 'dictionary definition' as problematic, as does subjecting the terms of the request to further interactional work (e.g. in Extract 29).

In Extract 32, 'highwayman' is a word that features in the course text that describes highway robberies in the Stuart period. However, unlike 'convent', the word has also been explained a few minutes ago to the class by the teacher. This also represents the knowledge gap which Liisa's use of the demonstrative pronoun 'se' ('it') preceding the referent achieves at line 2, as opposed to asking for a similar 'dictionary definition' as in extracts 30 and 31. In a similar vein to a definite article, it marks referents as something the recipient is expected to be able to identify or know (see e.g. Laury, 1997, also VISK §569, 1413-4, 1418). Here, it in effect pinpoints the knowledge that Liisa is inviting into a specific interactional event, i.e. the previous teacher's explanation. The inclusion of 'se' thus indexes some degree of knowledge by the requester, and thereby fine-tunes (upgrades) the relatively 'unknowing' K- epistemic stance established by the

use of *wh*-interrogative (cf. Heritage, 2012a). This is also the knowledge gap that Aulikki orients to in her answer by employing past tense (*'se oli'*, 'it was') to convey that she refers to this prior interactional event and is not answering what highwaymen are 'in general' (in contrast to K+ formulated responses using the present tense e.g. in extracts 27 and 29).

Besides soliciting the translation and explanation of individual words or phrases, another frequently observed knowledge gap type concerns the location in the course text of specific information which is relevant to the formulation of a 'correct' task answer. These requests differ from 'What is X' formatted questions in the sense that they do not treat the meaning of a concept, word or a phrase that they refer to as unknown, but claim at least some degree of knowledge of it. In the following extract, the beginning of which has previously been shown as Extract 18, Alma asks Esteri during independent work which part of the course text contains information that can be used to answer a task about the Puritans. As mentioned in conjunction with Extract 18, in the course of formulating the knowledge gap, Alma handles three artefacts: the task sheet where the teacher-assigned question on the Puritans appears (on the table), her notebook where she writes the answers (on the table, partly overlapping the task sheet) and the course text (in her left hand) where information for an answer to that question should be found.

Extract 33. The Puritans (shown previously as Extract 18)

- 01 Alma -> °Esteri onko nää niitä-°
 °Esteri are these those-°
 -> {QUICK GLANCE TO ESTERI
- 02 -> LIFTS THE COURSE TEXT IN FRONT OF HER
 03 Esteri GAZE TOWARDS ALMA
- 04 Alma -> °missä on ne puritan°
 °where are those Puritans°
 {PUTS FINGER ON TASK SHEET
 {GAZE TOWARDS ESTERI
- Alma
- 
- Esteri
- 05 Esteri °what°
 {LEANS CLOSER TO ALMA
- 06 Alma °ne puritaanit°
 °those Puritans°
 {LIFTS HER NOTEBOOK TO LOOK AT TASK SHEET UNDER IT
 (1.7)
- 07
- 08 Esteri -> °jai (.) kasi°
 °oh (.) eight°
 {LEANS BACK, GLANCES AT HER TEXT, THEN GAZE TO ALMA

- 09 Alma °oho-° (.) ne-
°oops (.) those-°
{SHIFTS GAZE AND POINTS AT COURSE TEXT
- 10 †hä
†huh
- 11 SHIFTS GAZE TO ESTERI
- 12 Esteri -> °ai mikä kysymys°
°oh what question°
{GAZE AT OWN TEXT
- 13 Alma -> <nee> (1.2) <öömm>
<tho:se> (1.2) <erm>
{GAZE AT TASK SHEET, POINTS WITH PENCIL
{ESTERI LIFTS HER COURSE TEXT UP
- 14 Alma -> (painful punishments)
- 15 Esteri -> MOVES FINGER UP & DOWN THE PAGE
- 16 Alma PUTS HER COURSE TEXT ON THE TABLE AND EXAMINES IT



After cutting off a turn which is hearable as an information request using polar interrogative morphosyntax (line 1), Alma assembles together the course text and her task sheet and has a second go at producing a request at line 4, this time designing her request differently. Such a cut-off of a 'first' attempt may be due to lack of recipient gaze at the time Alma glances at Esteri (see Goodwin, 1980; Heath, 1984, p. 249 on how speakers regularly restart turns when they receive no gaze from hearers), particularly in the context of a turn that draws heavily on deictic formulations, which require recipient gaze to render them understandable. On the other hand, Alma's self-repair may also be related to her needing more time to co-ordinate all the pedagogic artefacts that go into the identification of the knowledge gap. When she reformulates her information request again at line 4 after having checked her task sheet, she makes the course text and the task sheet, which contains the question⁴¹ she is trying to solve, relevant to her request by holding one and pointing at the other (see transcript image). Alma's self-repair thus not only constitutes a revision of the epistemic stance indexed by the morphosyntax of her verbal turn, but it also, and perhaps more significantly, is a modification to the resources used to formulate the knowledge gap. Similar to Extract 32, the revised turn design conveys the enquired referent as an already-known item, at least to some degree, through the use of a demonstrative pronoun 'ne' (literally 'they') to specify the referent 'Puritans'. Such modifications as regards the grammatical resources used and the ways in which the two artefacts are manipulated are turn-design features which can be seen to orient to the first attempt as somehow repairable (see Stivers & Rossano, 2010b) – as opposed to treating lack of mutual gaze as the reason for the restart.

Note how such a formulation is still not quite enough to disambiguate the asked-for knowledge object, but instead this needs several rounds of repair. Esteri first initiates repair which she marks as addressing a hearing problem at

⁴¹ Task: "It is impossible to think of England without a monarch, but during Stuart times, the monarchy was abolished for 11 years. A man called Cromwell came to power, because the king, Charles I, was not loved. Together with Cromwell came the Puritans. Read about the Puritan laws - Painful Punishments - explain what kind of people the Puritans were."

line 5 by leaning closer to Alma. Treating the trouble as a matter of referent identification, Alma repeats the referent – albeit translating it in Finnish – and directs her gaze to the task sheet, which she uncovers from under the notebook at line 6. After an approximately 1.7 second silence, Esteri displays her understanding of Alma’s repair by presenting the task number (‘eight’) as a candidate answer, prefaced by the Finnish discourse particle ‘ai’ (‘oh’; see VISK §1028) to convey that she has ‘noticed’ something and mark the task number as an inference based on the previous turn. By not proceeding with the activity but instead leaning back and shifting her gaze towards Alma, Esteri makes clear that whether or not the topic of the request in fact relates to task item ‘eight’ still needs her confirmation. However, immediately following this, at line 9 Alma shifts her focus to the course text in her left hand and produces what appears as self-talk to claim noticing, an action which constructs a momentary misalignment between the two students.

As Alma gets back to the interaction with Esteri (lines 10-11), the latter pursues the yet unprovided repair to her initiation at line 12, taking a step back from her previous inference from an ‘ai’ prefaced candidate task item (line 8) to employ a more ‘on record’, interrogative questioning format. Note how Esteri begins to lift up her course text already while Alma is still resolving the repair by referring to the linguistic formulation of the task (‘painful punishments’). Immediately following this, Esteri responds to Alma’s original knowledge gap by displaying the correct page of the course text and running her index finger up and down the page, thus delineating a stretch of text as relevant for Alma’s request (see image). Importantly, such an embodied SPP response, which highlights an aspect of the physical artefact, conforms to the manner in which the knowledge gap was initially identified in the FPP position.

In this case, both Alma’s requests, the abandoned (line 1) and the completed (line 4), deal with knowledge that is intrinsically related to both texts that Alma is attending to throughout presenting the request. That is, neither of them directly enquires *who* or *what* the Puritans were (which is what the task itself asked for) but rather *where* in the course text such knowledge may be located. When students ask each other where certain information is to be found in the course text during task work, the implication nevertheless is that what counts as ‘the correct answer’ is being requested, not only a bit of text which the recipient may or may not have used to formulate their answer. This can be seen in Extract 34 in which Konsta is searching for text location that deals with Stuart time hygiene, the topic of one of the questions on their task sheet, and receives a K+ positioned response from Riku.

Extract 34. Hygiene

KONSTA IS HOLDING HIS TEXT IN FRONT OF HIM, AS IF
READING A NEWSPAPER

01 Konsta -> †where’s that hygiene <thing>
02 (1.0)
03 err=

interrogative is not treated by Riku as a repair-initiator (e.g. by providing the 'same' answer as at line 4) but instead he responds by giving more specific instructions at line 9, as he identifies a section on the page. This indeed supports the interpretation that the preceding silence was indeed observably used by Konsta to search for the correct page, as this informs Riku's next action. Following the provision of more specific information, Konsta switches the code to Finnish and uses the particle chain 'ai että' to preface his turn (the other component of which [*eat like the Stuart*] is a title on the page being talked about) as an inference based on Riku's previous information-providing turn (Sorjonen, 2001; VISK §1028).⁴⁴ Once the inference is confirmed by Riku at line 12, Konsta appears to attend to his course text in order to formulate his task answer: even though his turn at line 13 is designed to project further talk, the sequence is nevertheless closed, and both speakers continue their independent work for the time being.

In summary, in both extracts 33 and 34, the knowledge gap being resolved concerned the location of information needed for constructing a task answer. Both requests thus did not treat the meaning of a word (such as extracts 27, 30-32) or the task answer itself (Extract 28) as unknown, but rather where in the course text task answers were being explained. For these types of knowledge gaps, wh-interrogative formats provide a resource for conveying a fairly 'unknowing' K- epistemic status regarding the targeted information, which can be fine-tuned with e.g. lexical elements such as demonstratives to index mutually known referents. Most of the time when questions pertaining to location in the text receive 'knowing' responses, they are readily accepted by the student indicating lack of knowledge, suggesting the epistemic stance they index generally is taken to correspond to a similar epistemic status. Extract 29 seems to represent a somewhat deviant case, as Paavali emerges over the sequence as more knowledgeable regarding the word 'occupy' than what the sequence-initial use of wh-interrogative formatting affords him. However, any consideration of possible discrepancy between epistemic stance and status cannot exclude the relational nature of knowing, which comes to play particularly vividly as Jouni orients to the provision of the projected K+ response as problematic by initiating an insert sequence to re-negotiate the terms of the knowledge gap. Such interactional work allows both students to 'move the goalposts' so that a knowing answer can be given, and it represents an activity in which the provision of all available knowledge can be expected even from a K- positioned requester.

As the next section will illustrate through an analysis of polar request formats, different morphosyntactic resources for identifying knowledge gaps in the classroom index differing knowledge gradients between the requester and the recipient, as well as conveying certain expectations concerning the answer.

⁴⁴ 'Ai että' particle chain can also be used for doing exclamation (see e.g. VISK §857 and 890); however, here Konsta's turn employs a 'flat' intonation contour, which suggests - and is indeed treated as such by Riku - that it is still concerned with establishing the status of the information being proposed by Riku, not expressing an affective stance.

4.5.3 Polar interrogative structures

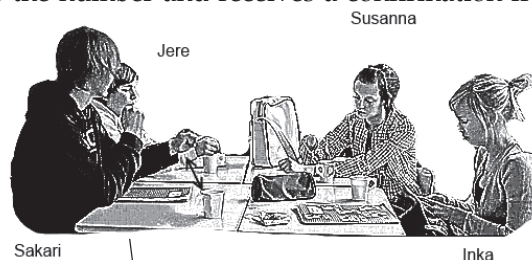
Another commonly used resource for indicating lack of knowledge are polar (yes/no) interrogative structures, which previous research has identified as encoding a more ‘knowing’, yet K-epistemic stance than wh-interrogatives (see Heritage, 2012a). In the data collection, polar requests tend to be used for the purposes of confirming the validity of a candidate answer or a procedure-related query by presenting two alternative options for the consideration of the addressed recipient. When presenting polar requests, speakers can use (lexical) resources to fine-tune or ‘recalibrate’ the epistemic stance indexed by polar morphosyntax by means of conveying an expectation of certain kind of an answer. In linguistics, this possibility to present the two polarity options as somehow non-equivalent is generally called ‘conduciveness’ (Quirk, Greenbaum, Leech & Svartvik, 1985, p. 808). The concept of conduciveness comes close to the CA notion of preference organisation (for a comparison, see Koshik, 2002a), which relates to how a second pair part action aligns with the activity begun by a first pair part action. Thus, rather than referring to psychological dispositions, ‘preferred’ responses are those that structurally further the activity, such as answering a summons, or, generally speaking, agreeing with an assessment. What is more, previous research has revealed that preferred and dispreferred second pair parts are often produced strikingly differently, so that preferred SPPs tend to be short, immediate and unmitigated, whereas the opposite holds for dispreferreds (see e.g. Atkinson & Heritage, 1984; Pomerantz, 1984a; Schegloff, 2007, pp. 58–96). Turning the attention to knowledge gaps in the data collection, polar morphosyntax offers resources to students to convey a relatively knowledgeable stance regarding a knowledge gap by delimiting the pool of expected responses to two (of which one may be signalled by means of lexical elements as more expected than the other). These resources work to construct such indications of lack of knowledge as actions delivered from a relatively knowing K-stance, turns that can be glossed as ‘requests for confirmation’. Such a knowing K-stance becomes visible in the way preferred answers (i.e. provided confirmations) often lead to sequence closure, and dispreferred responses are delayed, mitigated, and when presented, challenged in sequence expansions – all signs of the existence of a structural preference organization.

Languages of the world accomplish polar requesting with different morphosyntactic resources (see e.g. Dryer, 2013), which is also the case with the two languages used in the data collection classroom, English and Finnish. In English, polar requesting is accomplished through subject-verb inversion (i.e. a VSO structure), a question word, or in the case of negative polar questions, a negative morpheme (*n’t*). In addition to these, declarative syntax, prototypically with rising intonation, can be used to make relevant a ‘yes’ or ‘no’ response. Finnish, on the other hand, uses the interrogative morpheme *-ko/kö* (or *-ks* in many spoken varieties) suffixed to the turn element being questioned, which in addition is fronted (see Hakulinen, 2001a, p. 2; Sorjonen, 2001, pp. 33–36). Besides different resources for signalling polar requests, languages of the world

furthermore differ in the kinds of minimal answers which these questions make relevant. In some languages, such as English, polar requests can be satisfactorily responded to with a positive ('yes') or a negative ('no') particles, whereas minimal answers in other languages may involve an agree-disagree system with regard to the polarity of the question, or answers that repeat the verb of the question (see Hakulinen, 2001a). In Finnish, polar questions can minimally be responded to with positive and negative response particles as well as repetition (see Sorjonen, 2001, pp. 33–56, for interactional division of labour between repeating and response particle "joo"['yeah']).

Typical knowledge gaps that are conveyed through polar requests include the checking of classroom procedures and task instructions. The next extract illustrates the use of a polar request in one sequential environment where they are frequently presented to peers to confirm information that has just been conveyed. In the extract, the teacher is instructing a forthcoming task, for which she is allocating numbers to the student groups formed by the way the desks are arranged in the classroom. The instruction is overlapped with some non-verbal off-task activity in the focal group of students, which is a possible cause of uncertainty concerning the number that the group is simultaneously given by the teacher. It may be this ambiguity that Jere orients to following the number-allocation sequence as he checks the number and receives a confirmation from the (overhearing) teacher.

Extract 35. Group numbers



<p>01 Susanna mulle sitä lusikkaa <i>gimme that spoon</i></p> <p>02 Sakari -> BANGS JERE'S DESK</p> <p>03 Jere mmh</p> <p>04 LIFTS ARM AS IF TO HIT SA</p> <p>05 Sakari SMILES</p> <p>06</p> <p>07 BANGS JERE'S DESK</p> <p>08 Jere GIVES HIS SPOON TO SU</p> <p>09 Sa & Je -> GAZE TO TEACHER</p> <p>10</p> <p>11</p> <p>((8 LINES REMOVED DURING WHICH TEACHER ALLOCATES GROUP NUMBERS))</p> <p>12 T a:nd,</p> <p>13 Jere -> >ollaanko me< (.) one >are we< (.) one</p> <p>14 T -> yeah you're-</p> <p>15 Susanna ↑hnh</p> <p>16 Jere -> me ollaa ykkösiä we are number ones</p> <p>17 T and ↑here's the work for (.) team one?</p> <p>18 HANDS OUT THE WORKSHEETS FOR THE GROUP</p>	<p>T ↑there you already see the (.) work (.) you're gonna do. (.)</p> <p>a:nd uhh (0.5)</p> <p>-> err ↑you are- {POINTS AT THE GROUP (0.8)</p> <p>-> Sakari? (.) Jere? (0.6) and the girls, you are team one? DRAWS A CIRCLE IN AIR</p>
---	---

As per the weekly custom in the classroom, the students are having tea at the beginning of the lesson while the teacher instructs the day's task, showing the worksheet at the same time on the OHP ('there' at line 1). Due to being seated in groups, talk and other parallel activities may, however, be conducted in groups simultaneously to the instruction-giving. Here, Sakari is apparently trying to (jokingly) make Jere spill his tea by banging on Jere's desk (see transcript image), receiving what can be characterised as a pretend threat of physical violence, as Jere lifts his left arm up right next to his head, fist clenched, and suspends the movement mid-air. Sakari's smile (line 5) embodies an orientation to this as non-serious, as does his continuing of the mischievous activity at line 7. However, during this activity, the teacher has already made the transfer from general task-instruction to allocation of group numbers to configurations of students. As she addresses the focal group at line 6 by identifying them with the second person pronoun ('you') and pointing, she projects the beginning of instructions pertaining to that specific group. In a more general sense, addressing a turn to specific students demands those students to sustain their attention on it in order to understand what action it proposes to do. Against this backdrop, Sakari's simultaneous banging on Jere's desk is taken not to be displaying sufficient attention to the teacher's instruction when she utters the names of the two boys at line 8. Notice how the prosody of the names – i.e. a 'stressed' production, rising intonation, separation by a micro-pause – makes them 'stand out' from the main activity done through the extended turn. However, this action of reprimanding with first name and prosody does not lead to the initiation of a separate reproach side-sequence: as the two students visibly stop their 'off-task' activity and shift their gaze to the teacher at line 9, she seamlessly weaves the reproach into the primary activity of number-allocation to the groups by identifying the remaining students in the focal group ('and the girls') and announcing them as 'team one' (lines 9-11). Such plural addressee terms used by the teacher may not only contribute towards the construction of gender in the classroom, but they have also been found to be employed for the management of face in reproach sequences (see Tainio, 2011).

Although skilfully produced, such a turn that accomplishes two actions, reprimanding and number-allocating, may be ambiguous. As it turns out, after the teacher has gone through the groups in the classroom (not shown in the transcript), Jere indicates a knowledge gap by requesting a confirmation of their group's number at line 13, formulating his turn as a Finnish-language polar request (albeit identifying the group number ['one'] with the same means as the teacher). Although Jere's turn appears to be addressed to Susanna by means of bodily orientation, the fairly low volume and the Finnish language employed⁴⁵, the teacher overhears it, and quickly confirms the validity of Jere's proposed information by employing a positive particle ('yeah') and repeating the verb used by Jere ('you're-') before cutting off the turn.

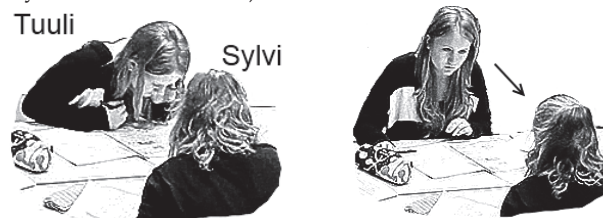
⁴⁵ Unfortunately, Jere's gaze is not clearly seen on the camera as he is partly behind Sakari at the time when he delivers the request, but his head position indicates the turn is addressed to Susanna, who is sitting opposite to him.

Notice that as Susanna, whom Jere oriented to as recipient, initiates repair at line 15 and thereby shows that she treats herself as the recipient, Jere does not redo the request but instead asserts the information and indicates that the knowledge gap he presented has now been successfully resolved by the over-hearing teacher's quick confirmation. The quick manner of resolution further illustrates how polar morphosyntax here indexes a knowledge gap that relates to the checking of some candidate understanding.


Besides checking one's understanding of teacher talk, another context for polar morphosyntax is for querying what one's peers are answering in their own task sheets when working on individual tasks. This kind of co-ordination and sharing of task answers is also done using *wh*-interrogatives in which case the requester can, for example, request what the recipient is writing or what the students 'have to write' as an answer (e.g. Extract 21), the implication being that whatever the recipient has written is the correct and acceptable task answer (unless marked as a 'best guess'). However, when polar requests are used for similar purposes, the requester at the same time presents some information to be evaluated and confirmed by the recipient in terms of whether it is in fact the 'correct' answer. Epistemically then, the use of a polar turn design in requesting information involves the requester making stronger claims to the knowledge being negotiated. The use of polar morphosyntax thereby indexes having some knowledge or evidence (which itself can be obtained from a variety of sources) but not 'quite enough' in order to be able to move on with the task.

In the next extract, a reprint of Extract 10, the students are working on such independently-accomplishable tasks on the Stuart period when Tuuli asks whether or not Sylvi plans to mention a specific item, 'candles', in her task answer on the cause of the Great Fire of London in 1666. The task itself is based on a text which does not attribute the spread of the fire to candles, but it has been suggested as a possible cause a few minutes earlier by another speaker in the group, Alma, who has pointed out the candle-like form of the monument built to commemorate the Fire. Tuuli however checks if Sylvi will also be including candles in her task answer, and after receiving a negative answer, solicits Sylvi's opinion on whether another bit of the text may be used as a task answer.

Extract 36. Baker's peel (previously shown as extract 10)



01	Tuuli	LIFTS GAZE FROM THE DESK TO SYLVI
02	->	<div style="border: 1px solid black; padding: 5px;"> kirjotak sääki Sylvi jostai kynttilästä are you also writing about some kind of candle, Sylvi {SYLVI LIFTS GAZE} </div>
03	Sylvi	↑m- ↓mm {SHAKES HEAD}

- 04 Tuuli GAZE TO OWN TEXT
 05 -> onkse ↑sitte tämä <juttu>
is it this <thing> ↑then
 {MOVES FINGER ON THE TEXT
 {GAZE BACK TO SYLVI
- 06 Sylvi SHIFTS GAZE TO TEXT
 07 Tuuli että mikä pitää kirjottaa ku siinä lukee jotai et se
that you have to write cos it says something that he
 08 niinku (.) heilutti sitä
like swung it
 {SWINGS HANDS FROM SIDE TO SIDE
 (8.5) / TUULI'S GAZE TO TEXT;
 AT 2.5 S GLANCES AT ESTERI
- 10 Sylvi -> °°emmää tiiä°°
 °°I dunno°°
 {SHAKES HEAD
- 11 Tuuli TURNS THE PAGE KEEPING GAZE ON TEXT
 12 (6.5)
- 13 Sylvi -> mää kirjoti vaan että- (1.6) mmh (.) että
I just wrote that- (1.6) mmh (.) that
 14 it started from a wooden house in Pudding Lane
 {TUULI GAZE TO SYLVI
- 15 Tuuli joo
 yeah
- 

As mentioned in conjunction with Extract 10, Tuuli's polar request at line 2 both alludes to previous talk by Alma and works as a preliminary request for the identification of a knowledge gap. More specifically, it does so by checking if Sylvi agrees with the ideas previously expressed by Alma as regards the correct answer: by raising this as a possibility, Tuuli offers Sylvi the means to 'block' (cf. Schegloff, 2007, p. 30) the projected request from being presented in the first place. Thus, as Sylvi claims not to write the same answer as Alma at line 3, it means that the two parties can engage in talk about an answer *other* than the one proposed by Alma.

Following the clearing of this precondition, Tuuli formulates a knowledge gap through a complex multi-TCU turn that employs Finnish polar morphosyntax, pointing and embodied actions to identify a stretch of the course text (lines 5, 7) as the bit that includes information which you 'have to' write in the task answer. Rest of the turn retells both verbally and through a bodily display a common story of how the fire started as a baker swung his bread peel (see transcript image), something which is described in the course text. Together these turn-constructural elements accomplish a request for the confirmation of a specific candidate version of the course of events that, according to Tuuli, led to the Great Fire of London in 1666.

As it turns out after an approximately 8.5 second silence during which Sylvi visibly attends to the course text, she claims insufficient knowledge to assess the correctness of Tuuli's candidate task answer (line 10). After a further noticeable silence, during which Tuuli has already dis-engaged from talk and begun examining her task sheet, Sylvi adds to her response a description of her own answer to the task at lines 13-14 as a 'best guess' (see also Extract 11). Although Sylvi's claim of no knowledge is separated by a 6.5 second silence from

her announcement of her task answer, her sustained orientation to examining the text between lines 10 and 13 tie these two turns together and underline her less than full committal to her own task answer (on “I don’t know” as a pre-positioned epistemic hedge, see Weatherall, 2011).

The way polar morphosyntax can be used to build one of the proposed answers as somehow ‘expected’ can here be seen in the way Sylvi’s response (lines 13-14), which does not confirm the ‘expected’ option but asserts otherwise, is produced as a dispreferred action. It is not only delayed but also hedged and prefaced with the no knowledge claim. Providing a non-projected response to a polar request involves the managing of two different structural preferences, on the one hand by furthering the activity of the FPP information request in general by providing a K+ response, but on the other hand by providing the specific type of response invited by the request. Here, a prefaced K- claim along with an extended examination of pedagogic artefacts allows Sylvi to assert an ‘unexpected’ response as a ‘best guess’ (see also section 4.6.3).

Similar expectance for a knowing answer of an agreeing polarity is oriented to in cases where a polar request receives a response that disagrees with the state of affairs it is proposing – but does so much more hastily than in the previous extract. In such cases, it will often lead to the students needing to negotiate which of the two alternative ‘versions of reality’ put on the table is correct (ways of contesting K+ positioned answers will be analysed more thoroughly in section 4.6.4). In the next extract, which takes place during independent task work, Matti suspends his writing to check whether rats that caused the plague came from Indonesia, their origin having been addressed in whole-class talk earlier in the lesson. Instead of confirming the proposed knowledge, however, Paavali offers another country as their correct origin.

Extract 37. Indonesia

```

01 Matti      STOPS WRITING AND SHIFTS GAZE TO PAAVALI
02           -> tuliko ne      Indoneesiasta
                did they come from Indonesia
03           (0.7)
04 Paavali -> <Intiasta>
                <from India>
                {LIFTS GAZE TO MATTI
05           (0.8)
06 Matti     -> Mauri puhu     jostai Indoneesiasta
                Mauri talked about some Indonesia
07 Paavali   Intiasta
                about India
08 Matti     CONTINUES WRITING

```

Matti signals his disengagement from the silent task activity by stopping writing and moving his gaze from his notebook to Paavali, who is sitting opposite to him. His turn at line 2 uses Finnish polar interrogative syntax to present a request about the origin of the plague-causing rats, effortlessly identified here using the person pronoun ‘ne’ (‘they’) for the Paavali to confirm. The (recipient-) design of the polar request not only takes the addressed recipient to be well-

informed about knowledge regarding rats and the plague, but also treats him as someone who is expected to understand that 'they' refers to rats and know the significance of 'coming' to the outbreak of the plague. These are matters which have been previously mentioned in the whole-class interaction.

However, following a brief, approximately 0.7 second silence⁴⁶, Paavali does not provide the projected confirmation but takes a different, yet K+ positioned stance regarding the polarity option conveyed as preferred by the request. What is more, unlike Sylvi in the previous extract, he does it flatly and unmitigated by suggesting another country, India, as the origin of the rats. Matti's response at line 6 is to contest Paavali's 'knowing' answer, which he does by displaying the justification for his having suggested Indonesia in the question design, namely because another student had mentioned the country in the whole-class interaction earlier. (In fact, Mauri had earlier stated India as the origin country of the rats.). Although Paavali utters the same verbal item at line 7 as he did at line 2, his later turn is not a simple 'repeat'. Rather, it is hearable as an answer to Matti's just-prior contesting, not a repeat of his original response. Note how this ambiguity (to the analyst) rises from the property of the Finnish grammatical case ending *-sta* (elative) which is used to convey meanings that in English would be accomplished with the prepositions 'from' and 'about'. To the participants, these meanings are clear, so that Paavali's first utterance 'Intiasta' is taken to mean 'from India', whereas the second claims that Mauri had talked 'about India'. This is clear from how the second production of 'Intiasta' is sufficient to close the sequence: simply 'sticking to your guns' by repeating the previous response would be unlikely to have enough weight to accomplish following a turn that has contested it.

As has been argued in this section, polar requests are treated as indicating a 'more knowing' K- epistemic stance regarding a knowledge gap and thereby a relatively shallow epistemic gradient between a K- positioned requester and a possible K+ recipient. Accordingly, polar requests are routinely used to seek confirmation of specific information which is identified in the requesting turn, be it a candidate task answer, or an expected task progression or instructions. In principle, grammatically affirmative interrogatives treat an affirmative response as expected.

In addition to morphosyntax, the conduciveness for one polarity option over the other may be influenced by other resources, such as lexical polarity items (cf. VISK §1634-38 for some of these in Finnish language). This can be used as turn constructional elements which contribute towards reversing the polarity established by the grammatical design of a request. Consider the next two extracts both involving grammatically affirmative polar requests about further task answer items. Despite the affirmative polarity of the question design,

⁴⁶ As mentioned earlier, re-engaging lapsed talk in a task context involves the co-ordination of multiple activities. This often means that silences longer than in the course of a conversation can occur in speaker transition without necessarily any indication of trouble.

the two questions contain lexical items which contribute to creating an expectation for a negative answer, which is provided in Extract 38 but not in Extract 39.

Extract 38. Rats and water (shown previously as Extract 25)

01 Tuuli LIFTS GAZE AND MOVES IT TO SYLVI
 02 -> °tuleeko siihen pleigiin muuta ku rats ja <wa:ter>°
 °is there anything else for that plague except rats & water°
 -> {GAZE TO ALMA {GAZE FROM A TO S
 03 Sylvi {LIFTS GAZE {SHAKES
 HEAD
 04 Tuuli BEGINS TO WRITE
 05 Alma °(emmä muista / ei mummielestä)°
 °(I don't remember / I don't think so)°

Extract 39. Moving on

01 Alma mää voin siirtyä eteenpäin
 I can move on
 02 eihän mun tarvi oottaa sua ((YAWNS))
 I don't have to wait for you, do I
 03 (1.0)
 04 Sylvi täh?
 huh?
 05 (4.5)
 06 Alma -> olik siihe muuta
 was there (anything) else
 {SHIFTS GAZE TO SYLVI
 (0.9)
 07 Sylvi LIFTS GAZE FROM TEXT
 08 -> joo?
 yeah?
 09
 10 Alma -> mitä
 what
 {GAZE TO TEXT
 (0.9)
 11 Sylvi GAZE TO TEXT
 12 -> mm (.) drinking coffee (('FINNISH' PRONUNCIATION))
 {ALMA SHIFTS GAZE TO SYLVI
 13 Alma BEGINS TO WRITE
 (3.2)
 14 -> tuliko muuta sen jälkee
 did you have (anything) else after that
 (2.8)
 15 Sylvi TURNS A PAGE
 16 -> joo?
 yeah?
 (1.6)
 17 Alma -> mää en tienny et se on toisella sivulla
 I didn't know that it's in another page
 18 Sylvi making ice-cream
 19 BOTH STUDENTS WRITE
 20
 21
 22
 23



In Extract 38, Tuuli checks at line 2 whether there is anything 'else' ('muuta ku')⁴⁷ to add to her answer about the causes of plague besides 'rats' and 'water'. She uses Finnish-language polar morphosyntax which incorporates English-language words ('rats' and 'water') to refer to items whose status as correct task answer is taken for granted. Even though the polar request specifically takes a K+ epistemic stance regarding the correctness of these items, the inclusion of 'else' leaves open the possibility of other items being relevant too. It is the possible existence of such other items towards which lack of knowledge is indicated by Tuuli and requested from the two other group members. Sylvi's answer at line 3, a headshake communicating 'no', is an answer of negative polarity confirming that the two items mentioned by Tuuli suffice. Despite reversing the polarity of the request from affirmative to negative, Tuuli's quick acceptance by going back to her task before Alma has given her answer, illustrates how the reversed-polarity answer is nevertheless preferred in the sense that it furthers the sequence (cf. Schegloff, 2007, pp. 58–59), indeed brings it to closure. By moving to close the sequences, Tuuli treats Sylvi's response as expected and appropriate and having confirmed the hedged epistemic position conveyed by the request.

In Extract 39, Alma announces her plan to 'move on' to the next task at line 2. Following the repair initiation by Sylvi and a long silence, Alma uses polar morphosyntax to check whether the list of answers she has been compiling needs further answer items at line 6. The use of 'muuta' ('else') activates the answer items the two have been going through earlier, identifying them as known, and thus rendering the action a character of a kind of 'final check' for other possibly relevant items. Besides activating a certain context, the word also reverses the polarity of the invited answer from positive to negative (i.e. a 'no' answer). As opposed to the previous extract, Sylvi however responds by claiming to know a further item at line 9. Such a minimal answer of this polarity is quite simply not enough to close the sequence, and when prompted by Alma, Sylvi provides at line 13 a further item. After writing the answer down, Alma re-does a similar request asking whether there are more items to be added (line 16). This time, Sylvi's turning the page over in the course text together with another claim for knowing further items (lines 18–19) are followed by Alma's account for not having included these items in the first place (as they happened to be on the next page in the course text, a state of affairs Alma claims to not have known before). This account quite specifically treats the information provided by Sylvi as new and unexpected and thus addresses the disparity between the expected and the conveyed answer.

⁴⁷ Unlike in English, where the word 'else' frequently is preceded by a determinant such as 'anything', 'someone', 'nothing', in Finnish its addition is not necessary, as can be seen in both extracts (39 and 40). Quirk et al. (1985, p. 808) point out that determinants such as 'something' and 'somewhere' are assertive forms that construct conduciveness towards a response of positive polarity, whereas 'anything' and 'anywhere' are in this sense neutral. For this reason, the translated turns in both extracts include the word 'anything' in brackets, even if the closest correspondent in Finnish ('mitään') is not used by the students.

Taken together, extracts 38 and 39 describe situations where grammatically affirmative polar requests nevertheless convey an expectation for a response of negative polarity, i.e. their ‘conduciveness’ is reversed by the use of lexical polarity items. In extract 38, the expected negative answer is provided and duly accepted, whereas in example 39, an unexpected answer where new knowledge is provided leads to sequence-expansion and Alma to account for her not knowing the information Sylvi gives in her two responses. Both of these are signals of less than perfect alignment between the FPP and the SPP. Even if both requests are presented from a fairly knowledgeable K- stance, as they convey a predisposition to an answer claiming no new knowledge which would enable the requester to move on with the task, information is still being requested, not asserted. In this way, they differ from so called reversed polarity questions (Koshik, 2002a) sometimes used by teachers to assert their feedback to students in the grammatical form of polar questions. As described by Koshik (2002a), RPGs are teacher turns such as ‘Is it clear?’ or ‘Is that here yet?’, which, at least in one-to-one talk between a teacher and a student in writing conferences tend to be taken as a criticism of the student’s work being discussed. In these extracts, however, the requesters still orient to the recipients as more knowledgeable of the two by not contesting the recipient’s response, even if the formatting of the request is being used to convey that the request is being made from a fairly ‘knowing’ epistemic position.

Similarly to positive polar requests, negative polar structures may be used for requesting confirmation of the validity of some state of affairs, even if such structures appear rather infrequently in the analytical collection. In the next extract, Susanna checks the Finnish meaning of the expression ‘for instance’ with Inka. The exchange takes place while the teacher is going through and asking students to translate a list of transitional expressions (including ‘for instance’) for the benefit of later essay writing. As the main activity is organized so that the teacher nominates individual students to translate an expression at a time, there is a chance that Susanna will be nominated to tell what ‘for instance’ is, which may motivate the sequence which takes place parallel to the whole-class talk.

Extract 40. For instance

01				T	furthermore err
02	Inka	kauempana enemmän further more			Riku (.)
03	Susanna	GAZE FROM TEACHER TO INKA			have you any idea what
04		-> eikö for instance oo, isn't for instance, (2.2)			furthermore is. (1.6)
05					or anyone else
06	Inka	-> hä huh			
07	Susanna	-> °niinku >esimerkiksi<° °like >for example<°			
08	Inka	-> on se <u>mum</u> mielestä it is in <u>my</u> opinion			

As the teacher has nominated a student in another group (Riku) to translate 'furthermore' in Finnish, Inka breaks the word into two parts which she translates literally (and nonsensically) for her group members at line 2. Situations like this where the response slot of an IRE sequence has been allocated to another student provide opportunities to resolve knowledge gaps related to forthcoming language items, which Susanna grabs by beginning a negatively formatted polar request at line 4. She nevertheless suspends her request before it is recognizably complete, still missing a candidate translation of 'for instance', which the turn design has projected. This prompts Inka to initiate repair at line 6, following a fairly long, approximately 2.2 second silence. After that, Susanna delivers a candidate translation of 'for instance' ('esimerkiksi') in a fairly hushed voice, the validity of which she seeks to confirm with Inka. The sequence comes to an end as Inka confirms the correctness of the proposed translation, albeit qualifying it as 'her opinion' (line 8) rather than knowledge she would fully commit to.

As mentioned earlier, when polar formats are used to soliciting information, they tend to index a fairly 'knowing' K-epistemic stance regarding the knowledge object proposed. However, Extract 40 is an interesting and in some ways a deviant case in which the morphosyntactic form and other turn design elements are to some extent contradictory. Susanna's request (lines 4, 7) contains uncertainty markers, such as the delay between the TCUs making up the request which leads Inka to prompt Susanna to continue, the use of a hedging qualifier ('niinku', 'like') prefacing the candidate translation, which is furthermore delivered in a sped-up manner. These are features which contribute towards conveying a considerably less 'knowing' stance than the other polar requests described in this section do. Susanna's hushed voice may, however, be related to the silence in the main classroom activity, as the teacher is looking for a student response to her question.

Furthermore, it is also a deviant case insofar as requests for confirmation that have negative polarity are often seen to convey an expectance for an answer of similar polarity.⁴⁸ In Extract 40, this is simply not the case: Susanna's negative request is indeed heard by Inka as a request to confirm the offered translation, which she does, even if hedging. Neither is Susanna's negative request delivered in a situation in which the requester would have access to information answering the request, whereby the use of that morphosyntactic format would render the turn hearable as a critical assertion or an accusation (see e.g. Heritage, 2002; Koshik, 2002a). Instead, it appears that the turn involves what Schegloff (2007, pp. 76–78) has termed cross-cutting preferences between the action being conducted (i.e. requesting confirmation) and the syntactic vehicle being employed for that purpose (negative question preferring a negative response). As argued by Schegloff (*ibid.*), in such cases the response is generally tailored to address the action being implemented, as is the case here

⁴⁸ VISK §1694-96: turns beginning with *eikö* ('isn't it') which expect an answer of positive polarity tend not to function as 'questions' but rather as e.g. assessments which invite an agreeing response.

as Inka marks her knowing answer as a preferred response to the confirmation request.

Similar cross-cutting preferences appear to be going on in Extract 41. Before it takes place, the teacher has given the class a few minutes to wrap up their preparation for a task that involves reporting previous readings to the whole class and presenting questions to them. As she signals at lines 1-2 that the preparation time is shortly running out and the activity about to begin, the exact way of fulfilling the reporting task is still treated as a knowledge gap in the focal group, as Konsta asks whether they will only need to read the text aloud.

Extract 41. Do we only have to read?

01 T okay and are you ready to introduce your (1.1)
 02 °topic.°
 03 (0.7)
 04 Konsta -> ai pitääksee vaa <lu↓kea>
 oh so do we just have to <read> it
 05 -> (1.7) / RIKU SHIFTS GAZE TO HIS TEXT
 06 Riku -> vois tässä kyllä pari (juttua) ottaa niinkö-
 we could take a couple of (things) here like-
 07 MOVES HIS TEXT BETWEEN HIM AND KONSTA
 08 -> tosta meillä ei ollu kysymystä?
 we have no question about that one?
 09 (0.9)
 10 -> ni niinku vois ottaa vaa toho asti?
 so like we could just take up to that point?
 11 (1.0)
 12 Konsta mmmm

After the teacher's signal for beginning the reporting of the task (lines 1-2), Konsta marks his Finnish-language request on whether they will simply need to 'read' their text aloud to others as a clarification request of, and an inference based on, the teacher's just-prior turn by the use of the particle 'ai' ('oh'). Formulation of a request to concern what one 'has to do' is a common way in the data to check the expected course of classroom proceedings and task instructions. In constructing the syntactically positive question, Konsta uses the exclusive focus particle 'vain' ('just')⁴⁹, which works here as a polarity item, similarly to 'muuta' ('else') in extracts 38 and 39, by treating it possible that more effort is needed in order to accomplish the task satisfactorily. Therefore, Konsta leaves the door open for a response that does not agree with the polarity conveyed by the syntax of the turn design.

As it turns out, this is exactly how Riku responds as he begins to examine the text and essentially conveys that they need to do a bit more than what Konsta is suggesting (lines 6-10). However, the K+ positioned response is marked as dispreferred by being delayed (approximately 1.7 second silence) and mitigated through conditional mood ('vois', 'could') as well as describing the extra work

⁴⁹ In some spoken variants of Finnish, 'vain' takes the form 'vaa(n)' (see also VISK §839, 844).

as not causing any major work but instead simply involving ‘a couple of things’ (‘*pari juttua*’). Such a turn design, which from a grammatical perspective is un-called-for, can be seen to attend to the action it is doing, as Riku is in effect suggesting the group task is not ready but needs more effort even though the time is running out. Proposing to others what to do involves claiming deontic rights to determine their future actions (Stevanovic & Peräkylä, 2012), which can be a delicate matter, and is here pursued through a dispreferred turn design. To lessen the pressure placed on other group members, at lines 7-10 Riku even begins to do the extra work his knowing response places upon the group.

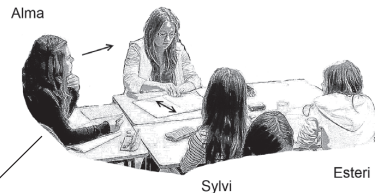
4.5.4 Declarative syntax

As previous research has shown, the provision of knowledge can also be requested with non-canonical morphosyntactic forms, not only through interrogative turn designs. A case in point is the ‘fishing device’ described by Pomerantz (1980) whereby by asserting information to which the recipient has primary access (such as their whereabouts or other personal information), speakers can provide them the opportunity to provide information without explicitly doing so. However, when students work on pedagogic tasks in the classroom, such an *a priori* distribution of knowledge may not always be assumed. Yet, declarative morphosyntax is on some occasions used in the data collection to indicate a knowledge gap, which in turn can elicit a knowledge display from another party. It is in this way that declarative syntax represents a fairly ‘off record’ and even ambiguous way of conveying lack of knowledge, one that heavily relies on the sequential position and the on-going activity being conducted for conveying lack of knowledge. This can be seen in the way it is more readily used in repair initiations requesting confirmation of a candidate understanding (cf. VISK §1207), as opposed to turns that re-engage lapsed talk during co-presence. Turns that employ declarative structures to indicate a knowledge gap in the classroom data often simultaneously draw on other resources to form the social action of requesting information, perhaps to counter the implications of asserting information conveyed by the specific morphosyntax. Extract 42 demonstrates how an explicit claim of not knowing can mobilise a clarification of the teacher’s instruction by an addressed group member. The example takes place after the teacher has announced that the next activity, a summary based on previously written essays, is to be written on post-it notes. During the extract, the beginning of which has been shown as Extract 24, Sylvi explicitly states that she ‘doesn’t get’ the task on two occasions, first to project the initiation of a sequence to address this and second time as a ‘last resort’.

Extract 42. Summary (lines 1-17 previously shown as Extract 24)

```
01 T           so you can write it down here. (.)
02           you remember what you wrote about. (.)
03           sum up your essay. (.) here?
04 Sylvi      -> °(emmä) oikein tajua°
              °(I don't) really get it°
```

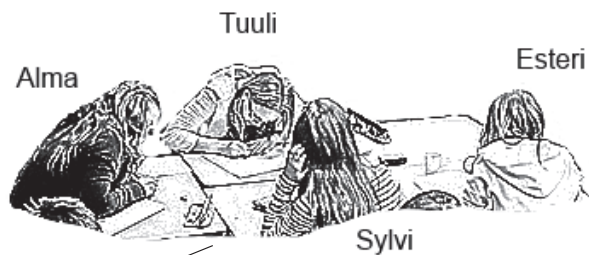
05 Esteri GAZES AT SYLVI
 06 -> emmä (tajua)
 I don't (get it)
 07 (1.6) / SYLVI'S GAZE TO TUULI
 08 Sylvi -> siis Tuuli ↑mitä meidän pitää kirjoittaa
 so Tuuli ↑what do we have to write Tuuli



09 Alma -> [siis kait ne ↑sanat]
 like I guess the ↑words
 {SHIFTS GAZE TO TUULI
 10 Tuuli [siis (0.8)] täs-
 like (0.8) here-
 {MOVES PENCIL FROM TOP TO BOTTOM OF PAGE
 11 SUSPENDS MOVEMENT AND SHIFTS GAZE TO ALMA
 12 Tuuli -> <eei> (.) vaa siis niinku lyhyesti (.)
 <no:> (.) but like briefly
 {GLANCES TEXT, MOVES PENCIL ACROSS
 THE PAGE, GAZE TO SYLVI



13 ni mitä me ollaan kirjoitettu tähä.
 like what we have written here
 {'SLAPS' THE TEXT
 14 (1.2)
 15 Tuuli -> <tiivistelmä>
 <a summary>
 {'SQUEEZES' HANDS CLOSER TOGETHER
 16 (0.7)
 17 Sylvi -> mmm
 18 ((18 LINES OMITTED - TEACHER HANDS OUT THE NOTES))



19 Sylvi -> °,siis mää en <↑tajua>°
 °↑like I don't <↑get it>°
 20 Tuuli SHIFTS GAZE TO SYLVI
 21 -> siis ki- (.) [tiivistelmä tästä.
 like wr- (.) a summary of this.
 22 Sylvi [ai niinku <I wrote from>
 oh like <I wrote from>

23	Tuuli	<u>eei</u> vaa siis sää niinku kerrot tän= <u>no:</u> but so you like tell this= {MOVES PENCIL ACROSS PAGE	T HEY EVERYONE
24		=mutta tosi lyhyesti =but really briefly	
25	Sylvi	mutta eihän (toho) mahu mitään but you can't fit anything (there)	T everyone
26	Esteri	lai[tat vaa ne aiheet just put the topics	
27	Tuuli	[niin mutta tosi tosi °lyhyesti° yeah but really really °briefly°	T Aulikki was asking a very important question.
28	STUDENTS	GAZE SHIFT TO TEACHER	
29	T	<what does> (.) summing up mean. (.)	

As noted earlier in conjunction with Extract 24, following the teacher's task instruction, Sylvi explicitly claims non-comprehension of it at line 4. This action can be seen to invite rather than make conditionally relevant (cf. Stivers & Rossano, 2010b, p. 53) a knowledgeable response. Note how this claim to a K-epistemic position, which is not formulated as total non-comprehension but more gradual through the particle 'oikein' ('really'), relies on the immediately preceding element of (whole-class) talk to indicate the object which Sylvi 'doesn't get' (cf. Keevallik, 2011). However, as it only appears to receive a similar claim of non-comprehension from Esteri (line 6), Sylvi upgrades the design of her action by using interrogative morphosyntax at line 8 and identifying the knowledge gap as related to what the students are expected to write on the post-it notes that the teacher is preparing to hand out (and which is the activity the teacher has alluded to at line 1).

Over lines 9-15, the addressed (Tuuli) and non-addressed recipient (Alma) provide in co-operation a knowledge answer to this query as they explain what the students are to do and name the task genre as a 'summary' (line 15), an answer which Sylvi accepts at line 17. The sequence is terminated as the teacher comes at the same time to the group's table to hand out the task sheets (during the omitted 18 lines). When the students have received their post-it notes, and Tuuli and Alma have begun working on the task, Sylvi delivers the second claim of non-comprehension using declarative syntax, at the same time scratching her head at line 19. This claim accomplishes a resumption of the previously pursued project of clarifying the task, which was possibly left incomplete by the previous teacher's interruption. Compared to Sylvi's prior claim of non-comprehension (line 4), this turn is a markedly upgraded version, not only by virtue of omitting the previously employed lexical item 'oikein' ('really') which qualified the degree of non-comprehension, but also by means of the emphatic production achieved with the turn-initial higher pitch and stress on the word 'tajua' ('get').

These prosodic features, together with head-scratching and the timing of the turn vis-à-vis task-accomplishment, contribute towards constructing a 'last

resort' appeal for help. And it is indeed treated as such by the previously addressed 'knower', Tuuli, who re-invokes the genre of a 'summary'. As Sylvi proposes how she would start her task answer ('I wrote from')⁵⁰, marking it as a somewhat non-serious and frustrated inference from Tuuli's response by using a turn-initial 'ai' ('oh') and pronouncing the individual words with a considerable drawl. Recognising the delicate nature of the situation, Tuuli emphatically and without mitigation and delay rejects it at lines 23-24, and instead provides instructions how to respond correctly. The final hurdle pointed out by Sylvi is the small space afforded to writing on the post-it note (line 25), which Tuuli and Esteri promptly resolve by invoking genre-specific ways of writing 'briefly' by 'listing topics'. As it turns out, the ambiguity of the task proved to be problematic for other students too, which is why the teacher at line 28, following another student's information request (see also Extract 3) initiates a whole-class sequence to clarify what a 'summary' means in this context.

The two claims of non-comprehension (lines 4 and 19) in Extract 42 are difficult to conceptualise as singlehandedly accomplished through the grammatical vehicle offered by declarative syntax. Note how even if the two turns do indicate an unknowing epistemic status, they do not explicitly identify what the unknown or non-comprehended knowledge object is; rather, this is indicated to the participants by the sequential position of the turns, which is either right after a teacher's explanation (line 4) or following an earlier explanation sequence of a task that is currently supposed to be done (line 19). Moreover, note how the lexical particle 'siis' ('so') is heavily employed as a turn-initial element both in first and second positions. Sylvi not only uses it to preface her upgraded, interrogative request at line 8 but also before the 'last resort' claim of non-comprehension at line 19; Alma and Tuuli also use the particle before their K+ positioned responses to mark their turns as clarifications or explanations of the prior instructions (see also VISK §807).

In the classroom data, declarative syntax is not frequently used to initiate sequences to address lack of knowledge. It can be seen as a fairly unconventional grammatical formatting to invite uptake in the form of a knowledge display, which means distinguishing between whether it is doing requesting or asserting information in cases where no clear epistemic primacy of either party exists may be ambiguous. This is illustrated in the next example in which the focal group is due to present a summary of their readings to the rest of the class, together with questions they have devised during the previous lesson. As the group is preparing their presentation, Paavali uses declarative morphosyntax to formulate a request for confirmation whether they included anything about 'animal torture' in the questions, as part of a pre-sequence to a proposal for how to

⁵⁰ I wrote 'from', as opposed to 'about' or 'on', appears here to be motivated by the way meanings which in English can be accomplished with the prepositions 'from' and 'about' find correspondence in one single Finnish grammatical case ending (*-sta*, i.e. elative). This property, which also provided the means for the participants in Extract 37 to distinguish Paavali's two utterances ('Intiasta') as not referring to the same thing, offers here a grammatically sensible and acceptable way to start a sentence for the two students.

report the task to the class. However, the nature of the action conducted through the turn is treated as unclear by the recipient, Jouni.

Extract 43. Animal torture

```

01 Paavali    GAZES AT COURSE TEXT
02           -> eihän meillä ollu mitään  tosta=
              we didn't have  anything about that=
              {GAZE TO JOUNI
03           =animal torturesta noissa kysymyksissä
              =animal torture  in those questions (did we)
04 Jouni     -> ai ei ollu [kysymyksissä
              oh we didn't have it in the questions
05 Paavali   [eihän ollu
              we didn't (did we)
06 Jouni     -> eei
              no:
07 Paavali   -> nii,
              yeah,
              {PUTS THE TEXT CLOSER TO JOUNI
08           jos  luetaa <tuo?>
              if we read  <that one?>
09           TURNS THE PAGE

```

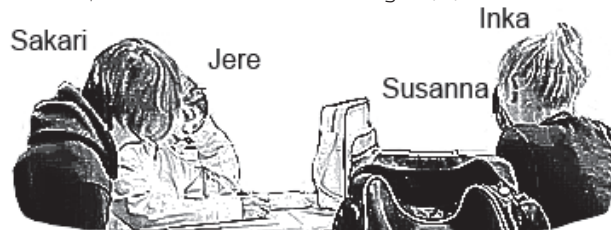
At lines 2-3, Paavali uses negative declarative turn design in Finnish, accompanied with the clitic *-hAn*, to request confirmation related to whether or not the students mentioned 'animal torture' in the task answer they devised during the previous lesson. In this case, it is the clitic and the subject-verb inversion which are doing confirming by conveying it as expected (see also Hakulinen, 2001b; cf. Holmberg, 2014) that 'animal torture' has not indeed been mentioned, functioning in a manner that is similar to tag questions in English. Jouni's response at line 4, however, treats Paavali's turn as possibly having asserted this information: he initiates repair by using the change-of-state token 'ai' ('oh') to preface a modified repeat of Paavali's just-prior turn, which most importantly omits the clitic used by Paavali (i.e. 'eihän meillä ollu' vs. 'ei ollu', ~ 'we didn't have, did we' vs. 'we didn't have'). It is this omission that Paavali immediately attends to as a signal that his turn was not correctly heard, as is evident in his partial repeat of the original declarative structure and the clitic at line 5, already in overlap with Jouni. This action, instead of confirming Jouni's candidate understanding as correct, provides the repair solution by confirming that lines 2-3 did indeed construct a 'question'.

As Jouni subsequently provides the sought-after knowledgeable response confirming that 'animal torture' does not feature in the questions (line 6), Paavali moves on to suggest how the two could report their task to the class (line 7). The expectance for a confirming 'no' answer is here retrospectively indexed by the discourse particle 'nii' ('so', 'yeah', 'then') which he uses to receive Jouni's K+ positioned response and to preface the return to the prior line of talk after the repair sequence, thereby conveying that his original request was delivered from a fairly knowing position that expected a certain type of response (see also VISK §811).

Sometimes a more implicit indication of a knowledge gap may have interactional benefits in the form of downplaying implications that are related to questioning. In the next extract, the class is doing the same translation activity as in Extract 40. Shortly before Extract 44, Inka had suggested to her group members that the translation given by the teacher for the word 'however' was somewhat off the mark, at the same time asking for the other students' opinion. Such 'doing being' a keen student was at the time sanctioned by Jere and Sakari, the two boys in the group, who told her to 'Google' the word at home instead of asking it from them. This may have contributed to Inka's indicating lack of knowledge of the meaning of 'moreover' in Extract 44 in a fairly covert manner after the teacher's explanation leaves it slightly ambiguous.

Extract 44. Moreover

01 T a:nd uhh (.) moreover is a (0.6) err (.)
 02 >in the same way as this< uh (1.0)
 03 uh (.) uh furthermore >here< (.)
 04 -> <edelleen>
 05 it means (.) give more (.) reasons (0.7) to explain
 06 when I say something and then (add) moreover? (1.2)
 07 it can be said (.) err that's not a (.)
 08 -> quite a good example but it's err (.)
 09 it's (.) gives an idea how to use
 10 .hh ↑what's most convincing. (.) Jouni



11 Inka -> moreover eli,
 moreover in other words,
 12 -> GAZE TO TASK PAPERS ON DESK
 13 T what's convince
 14 Inka -> °moreover mikä se oli°
 °moreover what was it°
 15 -> GAZE TO SUSANNA
 16 (6.0)
 17 -> GAZE BACK TO TASK PAPERS



During the explanation of the word 'moreover' to the class over lines 1-9, the teacher provides a Finnish-language translation ('edelleen'), in addition to comparing it to a previously translated item, 'furthermore', on the word list. Apart from providing a translation for the word, the explanation contains features which make it somewhat ambiguous, such as the teacher's description of her own example as 'not quite good' as well as the quick transfer from 'moreover' to 'most convincing' at lines 8-10. These may be reasons that occasion Inka's bringing the word into group talk at line 11 at a point in which the teacher has already moved on to the next word. Inka's turn, which has a continuing

intonation, employs declarative morphosyntax, having the structure of a designedly incomplete utterance (Koshik, 2002b), which leaves unspecified what ‘moreover’ actually is. Even if the turn does not appear addressed to any group member specifically, as her gaze seems to be somewhere between Susanna and Jere when uttering the turn and shift to the course material on her table immediately following the turn (see transcript images), Inka’s verbal conduct nevertheless puts a ‘possible’ (see Schegloff, 2006) indication of lack of knowledge on the table for anyone to respond to. After having investigated her papers, she indeed makes her action more conspicuous by incorporating an interrogative design and turning her gaze towards Susanna, a movement that generally is taken as a sign of next-speaker selection (lines 14-15). The latter’s response is, however, not forthcoming, and after approximately 6 seconds, Inka re-oriens to her task and ends the sequence.

Although Inka’s designedly incomplete utterance at line 11 could be seen as an ‘outloud’ announcement (Szymanski, 1999) commenting on one’s own task-accomplishment, which is an action that does not demand a response, her subsequent pursuit of a response with interrogative morphosyntax (line 14) orients to a display of recipient knowledge as something that was invited. Pursuing a response by modifying the original action design is a routine way in which speakers may show that the design of the initial action was at least partially responsible for non-uptake (see Stivers & Rossano, 2010b). Conveying lack of knowledge in such a ‘roundabout’ way may orient to more explicit forms of requesting information as being somehow inappropriate in the current situation. Here, the need for such formatting may have been related to the previously occurred sanctioning of the requester by the other group members for asking a question. Repeating an action type for which one has shortly before been sanctioned can be problematic, which may explain why Inka designs her turn at line 11 to indicate a knowledge gap so that it includes relatively few response-mobilizing features (see Stivers & Rossano, 2010a), which she nevertheless adds later due to delayed response. For such information-seeking actions which invite but do not necessarily make conditionally relevant a response, declarative syntax is one grammatical vehicle.

4.5.5 Indicating lack of knowledge through sequential and embodied resources

Besides using interrogative morphosyntax to construct canonical displays of unknowing epistemic status in an utterance, there are other methods which students can use to indicate lack of knowledge regarding some object. Similarly to declaratively formatted turns, these appear to rely more heavily on assembling together sequential and contextual resources to ascribe into some conduct an indication of lack of knowledge. This section describes some further ways which I argue students can deploy – and be treated as having deployed – to convey an implication that they do not know some object.

Delay in the production of summoned knowledge display

Previous CA literature on classroom interaction has revealed that delay in the production of a teacher's third turn following a student's response is heard to project a negative evaluation of the 'correctness' of the student's response (see Kääntä, 2010; Macbeth, 2004, p. 716). This is not the only sequential environment in which delay is oriented to as carrying epistemic significance in the classroom. This can be seen in how sometimes when a student's response to the teacher is delayed, other students may whisper the correct answer to that student, as if to help her. The next example describes such a case in which delay in producing an answer in whole-class interaction after a turn-allocation by the teacher motivates the provision of the 'missing' or delayed information as the 'byplay' (Goffman, 1981, pp. 133–134) of the student group. As such, it is a practice that shows how students are attuned to the need of producing knowledge displays in the classroom, as well as how they may draw epistemic conclusions from a delay in the production of an expected knowledge display. In Extract 45, shown previously as Extract 7, the class are going through a list of transitional words which the students need to use in their writing, and Inka is nominated to translate the word ('clearly') in Finnish. As her turn becomes delayed, the other group members begin to help her.

Extract 45. Clearly (shown previously as Extract 7)

<p>01 T 02 Inka 03 04 Sakari 05 06 Jere 07 T 08 Sakari 09 Susanna 10 T 11 Susanna -> 12 Inka 13 14 15 T 16 Sakari 17</p>	<p>clearly, (.) Inka {GAZE TO TEXT -> (2.5) GAZE TO INKA -> f°puhtaasti°f f°cleanly°f -> {INKA LIFTS GAZE TO SAKARI [°clear°° (('FINNISH' PRONUNCIATION)) [clearly f°puhtaasti°f f°cleanly°f °(onko se ----)° °(is it ----)° {INKA GAZE TO SUSANNA {SUSANNA GAZE TO INKA (-[-]) [se on selvästi it's clearly mmh TURNS TO FACE THE TEACHER selvästi. ↑mmh (.) ↑selvästi it's= =fpuhtaastif hehe fcleanlyf hehe STUDENTS LAUGH</p>	
---	--	--

As noted earlier in relation to Extract 7, the teacher's announcement of a new vocabulary item and nomination of Inka to translate it at line 1 has made Inka's knowledge display conditionally relevant (see e.g. Schegloff, 1968). As Inka's gaze has simultaneously shifted to the vocabulary list on her table, all present parties have an analytical basis to interpret her posture as a sign that she has followed the teacher's nomination and is observably aware of the next action expected from her as well as the location of the artefact (the list) needed for the activity. They thus have a basis for 'hearing' the 2.5 second silence, which halts the progressivity of the activity, at line 3 as belonging to Inka instead of the transition of speakership from the teacher to Inka. Sakari's reaction to the delay is to provide a candidate translation ('puhtaasti' ~ 'cleanly') at line 5, an action which treats the silence as a signal that Inka needs to be told the word, even if the word is uttered smilingly. At the same time as Sakari begins to provide the translation to Inka, the latter appears to shift her gaze to Sakari, suggesting that the 2.5 second may be the approximate time limit after which information could be requested using more explicit means (see also Extract 6).

Note how Sakari produces (the same) knowledge display on two occasions, at lines 5 and 8, only to find none of them accepted and relayed to the teacher by Inka. Her non-acceptance of the word given by Sakari may be related to treating it as a non-serious contribution based on Sakari's smiling delivery of his turn. Alternatively, it may be seen as displaying an awareness of what types of words are likely to be relevant to essay writing. It is only when Susanna joins in the conversation and offers another (and a more apt) translation 'selvästi' for the word 'clearly' that Inka takes up and repeats to the teacher over lines 12-14, turning her body to face the teacher behind her back (see transcript images).

To sum up, Extract 45 shows how students may treat a delay in taking a pre-allocated turn as a sign of unknowing epistemic status and remedy this by providing the knowledge which taking that turn requires. Similar judgments based on delay have been observed to be done by teachers (see e.g. Sert, 2011, p. 35, 2013), but whereas teachers tend to either double-check the student's epistemic status or re-allocate the turn after delay, here it functions to elicit the provision of knowledge. This is evident in how both Sakari and Susanna provide translations to Inka, showing that they still treat Inka as having the right to display knowledge of 'clearly' to the teacher. Comparable epistemic monitoring, albeit to a very different effect, is in play in situations in which other students, observing such delay, would bid for a new allocation of the response turn.

Displays of hesitation or disfluency

Besides the non-production of a timely answer, other kinds of displays of 'having failed' to adequately produce some stretch of talk, such as hesitation or disfluency, may be treated in the classroom as an indication of lack of knowledge which make the provision of the missing knowledge appropriate. Consider Extract 46, which takes place shortly after Extract 45 in the same group during the very same translation activity. In it, Susanna is preparing for the next item on

23 -> I don't know
 24 (1.0)
 25 T wha- what do you do when you make a conclusion.
 26 (1.3)
 27 Inka -> °eikse oo conclusion oo niinkö,°
 °isn't it conclusion is like,°
 {SUSANNA SHIFTS GAZE TO INKA
 28 T SHIFTS GAZE TO OTHER SIDE OF CLASS AND ALLOCATES TURN TO
 ANOTHER STUDENT

Still commenting on the previous translation of 'clearly' by Inka, the teacher produces a 'double-barrelled' account at lines 1-2 and 4. In it, the teacher not only attends to the delay in obtaining a translation by attributing it to an unfavourable time of the day ('morning') rather than being an indication of lack of knowledge but also manages to give an example of a possible use of the target word in a sentence. Both Susanna and Inka follow this commentary in a 'body torque' position (Schegloff, 1998) in order to visually attend to the teacher who is behind their backs. At line 3, however, Susanna turns her head slightly to face Inka (see image) and begins a turn, which she cuts off. The sound of Susanna's cut-off utterance at line 3 suggests she might be trying to say the word 'consequently', although that is not on the word list, which is available on the OHP in front of the classroom and in the form of a handout. Yet another possibility is that she attempts to pronounce the next word on the word list, 'conclusively' but confuses between the two sounds, [s] and [k], which the letter 'c' routinely represents in English. The aborted turn, together with the gaze shift, nevertheless gets Inka's attention, as she turns her gaze first on Susanna and then immediately on the desk, possibly to investigate the handout word list. As both girls attend to the course materials on their desks, Susanna produces what sounds as the first syllable of 'conclusively', marking it prosodically to invite Inka to complete the utterance (line 5). This effect is achieved by the high pitch and the highly salient elongation of the final sound of the syllable. Responding to this, Inka utters the word 'consequently' at line 7, precisely at the same time as the teacher announces it as the next item to be translated. Susanna's quick production of the complete word (line 8), beginning before Inka has had time to finish her turn, suggests that the correct pronunciation, or word, may have been on the tip of her tongue.

After the pronunciation of 'conclusively' has been settled, the two students move on to discuss the meaning of the word. Inka's repeat of the word at line 10 is uttered at a significantly slower speech rate, which projects further talk rather than indexes sequence closure.⁵¹ Immediately following this, Susan-

⁵¹ Inka's facial expression during the slowed-down production of 'conclusively' at line 10 is unfortunately not available to the camera (although it certainly is to Susanna). Whether or not her facial expression thus amounts to, for example, a display of a 'thinking face' (Goodwin & Goodwin, 1986; Hellermann & Doehler, 2010) that would suggest to Susanna that the sequence would continue with a search for word meaning cannot be ascertained; however, Susanna's next turn does indeed treat line 10 as at least not having indicated sequence closure.

na introduces another vocabulary item ('conclude')⁵² at lines 11-12, prefacing her turn with the discourse particle 'eli' ('so', 'in other words') to signal that her turn is to be taken as a candidate understanding (which is a common way for administrators to signal candidate understandings made on the basis of a client's previous turn, see Kurhila, 2006, pp. 164-169). Simultaneously, Susanna lifts her hand from the desk and points at Inka, the precise co-ordination of which together with the turn-initial 'eli' conveys a kind of a 'Eureka moment' whereby she claims to have discovered something. Susanna's participation in the sequence does not correspond to waiting for her addressed recipient to provide knowledge; instead, she is actively working to create that knowledge through her own actions at lines 11-12. Even so, Susanna is still taken to be the student whose knowledge gap the two girls are addressing: this can also be seen in the way Inka treats herself as someone whom a display of knowledge is in order, as she at line 14 asks Susanna to 'wait', which is an action that projects the eventual provision of that which has been requested. As it turns out, Inka's K+ response never arrives, as the teacher interrupts the sequence by nominating Susanna to answer in whole-class talk (line 17) simultaneously as she is providing another qualified candidate translation (lines 15-16) for Inka's confirmation. Instead of providing this translation - the correctness of which is as-of-yet unconfirmed by Inka - in response to the teacher initiation, Susanna claims insufficient knowledge at line 23. As Susanna does not respond timely to the teacher's follow-up question, which requests the meaning of the word 'conclusion' (line 25) but instead attends to Inka's translation attempt (line 27), the teacher shifts her gaze to the other side of the classroom and re-allocates the turn to another student bidding for the available turn.

To sum up, in this extract, an incomplete or 'failing' production in group talk of an English-language word (line 3), which is part of a translation activity, is treated as having indicated lack of knowledge regarding that word. The fact that such a production of 'sound', accompanied with a gaze shift from the front of the classroom to a peer, can indeed be taken as a sign of K- position regarding an incomplete word and a meaningful action testifies to the crucial role of contextual factors in ascribing a social action to interactional turns. Accordingly, the first resource for determining which word Susanna 'meant' was the word list on the table, consultation of which allowed them to first identify it and then initiate further talk to recover its meaning, even if the latter project was left unfinished by the intervening teacher.

Reading aloud task instructions

As described by Szymanski (1999, pp. 19-21), students can re-engage lapsed talk in groups by deploying so called 'outlouds', i.e. utterances commenting on individual activity. Outlouds are not addressed to any recipient, yet they are *available* to all copresent participants as a resource for further talk. Szymanski

⁵² 'Conclude' may be an attempt to find a 'simpler' form of the word 'conclusively', possibly the verb 'conclude'.

(1999) describes how an outloud utterance announcing one's position in task-activity may be picked up by another group member and used to doing jocular teasing. Additionally, outlouds may also occasion knowledge displays which treat the outloud as having invited such a display. Consider Extract 47, in which Konsta reads aloud a question⁵³ in the task sheet which the students have been given to answer, based on a text describing the Stuart period. The task is not meant as a group task as such, as the students each have their own task sheets, but by virtue of sitting in groups, Konsta's read-aloud can be taken up and used to construct conversation.

Extract 47. What was a highwayman?

```

01 Konsta      seven?
02              (3.7)
03              -> what was a highwayman
04              (1.0)
05 Mauri       [(-)
06 Riku        [highway↑man
07 Konsta      m[mh
08 Mauri       -> [erm (.) I suppose they were ↑thieves you know? (.)
09              >highwayman<
10              (0.7)
11              .hhh
12              (0.8)
13              -> @yeah@ (.) they are ↓thieves
14 Konsta      >highway star<
15 Riku        °ɛh[hɛ (0.7) highway star°
16 Mauri       [yeah. (.) but they were highwaymen
17              (1.2)
18              highwayman (.) erm I can, (0.9)
19              -> I'm almost remember them from (.) °RuneScape°
20              (1.1)
21 Konsta      hhh (.) travelling was difficult because of=
22              =highway<man>?
23              (0.7)
24 Mauri       highwaymen.
25 Konsta      -> nii, (.) what was highwa- (.) what was a highwayman
                yeah,
26 Mauri       -> >yeah< (.) they were ↓thieves
27              (1.4)
28              basically

```

At line 1, Konsta announces his position in the task ('seven') and, after a fairly long silence, proceeds to read aloud the said task item, which asks what the Stuart-time highwaymen were. Note how the task itself is formulated as an interrogative question, which is a readily available morphosyntactic resource for indexing K-epistemic stance in the classroom (cf. 'What is X' formatted requests). Konsta's announcement is shortly taken up by Riku and Mauri at lines 5-6, and following Konsta's confirmation of the referent as indeed 'highwaymen', Mauri responds with a somewhat hedging knowledge display, suggesting that they were 'thieves' (lines 8-9). After no verbal uptake of this display is

⁵³ Question: "Travelling was difficult because of highwaymen. What was a highwayman?"

provided during an approximately 0.7 second silence, Mauri takes a sharp in-breath and reasserts his knowledge at line 13. Note that this production is not a repeat of his first answer at lines 8-9: Mauri can be seen to upgrade his epistemic stance from a relatively weak K+ position ('I suppose they were thieves') into a more 'knowing' one by confirming the hedged position with a 'yeah' prefaced, [X is Y] formatted definition ('they are thieves'). Moreover, the two versions of the word 'thieves' are starkly different in terms of their prosodic features; whereas the first (line 8) is produced with item-initial rising intonation, the second employs falling intonation to convey that the turn is preoccupied with 'doing confirmation'.

As even the second, epistemically upgraded claim that highwaymen were thieves is not yet taken up by Konsta, who, instead of moving to close the search sequence, turns the knowledge display into word play by juxtaposing 'highwaymen' with 'highway star', a possible reference to a well-known Deep Purple song (see also Extract 73). Although appreciated as a humorous comment by Riku (line 15), the topic shift to 'highway star' is resisted by Mauri, who once again attempts to reinstate his K+ status by maintaining the talk on 'highwaymen' with a 'yeah but' prefaced turn. And as it once again does not receive an uptake that would accept it during the 1.2 second silence at line 17, Mauri provides an account for his knowledge of the word, how he 'almost remembers' them from the computer game *Runescape*.

Were Konsta to treat Mauri's K+ positioned response and the subsequent account as sufficient to validate the very answer and thereby close the on-going sequence, a sequentially unmarked way to display it would be during the silence at line 20. Instead, from this point onwards he appears to treat the knowledge gap as not yet fully resolved. At lines 21-22, he makes the task relevant by reading the first part of the question aloud, which may be seen as a way to convey less than full acceptance of the answer provided by Mauri, as opposed to the use of acceptance tokens such as 'okay'. Despite this, Mauri simply overtly corrects a grammatical error in Konsta's read-aloud from 'man' to 'men' (line 24), thereby ignoring his indication that the meaning of 'highwayman' is not yet settled. In response to this, Konsta redoes the second part of the question, prefacing his turn with the particle 'nii(n)' (~'so', 'yeah'), which appears to treat Mauri's previous grammatical correction as already known and therefore not providing what Konsta had been after (for "niin" in response to informings, see also Sorjonen, 2001, pp. 209-278). Notice that the rest of the turn - which Konsta self-repairs by inserting an indefinite article in front of the referent - is no longer simply an 'outloud' that may or may not invite a response. Instead, it functions here as a 'genuine', interrogatively formatted information request once more checking Mauri's response to the question. And once again, it receives a K+ positioned response which this time is enough to close the sequence.

In Extract 47, reading aloud a task which itself was formulated as a wh-interrogative question received a knowledge display on the task topic. By providing such a display, a student treats the 'outloud' as an indication of lack of knowledge regarding the correct task answer. That such an interpretation is

not necessarily too wide off the mark finds support in Konsta's actions too: nowhere does he treat Mauri's multiple knowledge displays as somehow inappropriate actions regarding the nature of the activity, even if he to some extent can be seen to question the validity or relevance of Mauri's candidate answers. What is at stake is not so much whether or not a knowledge display is in order in the first place but instead *when* is the knowledge gap actually deemed to have been fully addressed.

Outlouds such as this may be a somewhat 'roundabout' way to invite knowledge displays. It may be that by marking something as 'read aloud', a K-status regarding the targeted information is only ambiguously implied, and a K+ response is not made conditionally relevant to the same extent as an interrogative turn design does. A similar orientation to not displaying too high a personal investment in the resolution of the knowledge gap can be seen in how Konsta engages in word play after Mauri's original response.

Identifying knowledgeable students through task-related conduct

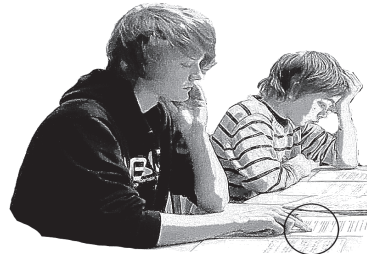
In the classroom, teacher-assigned knowledge objects are frequently represented in written form in pedagogic artefacts such as course books and task sheets, etc. The very same artefacts not only organise the way learning activities themselves are accomplished, but the way students handle these artefacts and conduct their task activities also function as contextual resources for them to formulate and recognise emergent knowledge gaps in the classroom. The force of pedagogic artefacts as a resource for classroom epistemics is intimately tied with the role of 'correct answers' in organising learning activities, as well as their nature as objects that can be discerned by closely investigating pedagogic materials. These provide a way of interpreting verbal and embodied conduct that attends to such artefacts for its significance concerning whether somebody knows.

Using this as a frame of interpretation, students and teachers have a systematic means to analyse actions in the classroom in reference to knowledge. As was illustrated in section 4.2.4.2, one context for introducing knowledge gaps in group interaction is following some kind of a (verbal) display of K+ epistemic status. However, engaging in task work has such fundamental implications for the epistemic organisation of the classroom that the immediate context that occasions an indication of lack of knowledge need not be talk. Instead, actions such as gazing at and leaning closer to another student when engaged with independent task work are sometimes taken by the students as requests for the 'correct task answer', an embodied action which by implication indexes lack of knowledge regarding that which is being written. Such a request can be accommodated to in various ways by the gazed-at student, for example, by making the task sheet better available to the gazing student or by initiating talk related to the task. In Extract 48, Sakari's verbal claim to knowing the answer to a task inquiring what highwaymen were and his prompt beginning to write the answer down are indeed taken as signs that he knows what amounts to the cor-

rect answer. Following this, Jere looks over Sakari's shoulder for an extended period of time, constructing a conspicuous action that is shortly afterwards treated by Sakari as requesting his task answer.

Extract 48. Thieves⁵⁴

01 Sakari seittemä,
seven
02 TURNS OVER THE TASK SHEET
03 (1.3)
04 Inka mäa etin sitä [ku (.) se-
I was looking for it when it-
05 Sakari -> [°what wa-° ((MOUTHS THE WORDS))
06 -> [↑aa what was the highway (mies) mää tiiän sen nyt
↑oh what was the highway (man) I know it now
{POINTS & THEN TAPS THE PAPER TWICE WITH INDEX FINGER,
07 Inka [traveling was difficult (.) what was a (.)
08 highway man (.) it was a (.) <thief> (1.8) that,
{SAKARI BEGINS TO WRITE
09 (5.0)



Sakari Jere



10 Jere -> LOOKS OVER SAKARI'S SHOULDER FOR C. 5 SECS
11 Sakari mitkä (.) /t^hi:vs/
what (.) /t^hi:vs/
{JERE SHIFTS GAZE TO HIS SHEET AND BEGINS WRITING
12 (3.2)
13 Sakari -> PICKS UP HIS SHEET AND SHOWS IT TO JERE
14 -> /t^heives/
{PUTS THE PAPER BACK ON DESK



15 Jere -> mi↑kä:h ((FURROWED EYEBROWS, MOUTH OPEN))
↑wha:t

⁵⁴ To more accurately describe the role of pronunciation for indexing whether interactional turns are concerned with establishing knowledge related to the meaning or spelling of 'thieves', which is key to understanding the social actions in this extract, an IPA transcription has been used for the word. This is separated from the Jeffersonian transcript with forward slashes (/ /) in an attempt to avoid it being confused with symbols of overlapping talk.

16 Sakari /t^hi:vs/
 17 Jere °(mää kato)°
 °I'll have a look°
 {TRIES TO GRAB SAKARI'S TASK SHEET
 18 Sakari PLACES HIS HAND ON THE SHEET TO KEEP IT TO HIMSELF
 19 the highway men (.) was (.) /t^hi:vs/.
 20 (2.0)
 21 Jere RAISES EYEBROWS AND OPENS MOUTH
 22 Sakari highwaymen,=
 23 Jere -> =</t^heives/>
 24 Sakari -> nii
 yeah
 25 Jere -> TURNS TO HIS TASK SHEET AND BEGINS TO
 WRITE
 26 Sakari -> /t^heives/ (.) tai jotain tämmöstä (0.6)
 /t^heives/ (.) or something like that (0.6)
 27 -> emmää oo ihan varma [onkse (noi)
 I'm not completely sure if it's like that
 28 Jere [mm



Similar to Konsta in Extract 47, Sakari announces his arrival at task item 'seven' (line 1) but instead of reading aloud the task instruction, he ends up positioning himself as a knowledgeable individual concerning the specific item. He does this by beginning to 'mouth', or read silently, the question at line 5, but quickly self-repairs the silent reading by cutting off the turn and beginning the question again, this time reading audibly. In addition, he prefaces the new 'reading' with a change-of-state token 'aa' ('oh') which he uses, together with pointing at the worksheet, to construct a claim that something has 'just now' been noticed (Bolden, 2006; Heritage, 1984a; Koivisto, 2014; Lehtimaja, 2012, pp. 118–121; Schegloff, 2007, p. 118). Incrementing his read-aloud turn, Sakari even verbalises his conduct with an explicit claim to K+ epistemic status regarding the particular task item. (In fact, some time before the sequence, the teacher explained the item in whole-class interaction, see also section 5.5). Simultaneously, Inka arrives at the same task item, reads it aloud and voices her answer ('it was a thief') at lines 7–8, thereby demonstrating knowledge of the task answer and the meaning of 'highwaymen'.

These claims and displays are available to other students in the group as evidence of who possesses knowledge of the 'correct answer'. A few seconds after Sakari has begun to write, Jere shifts his posture as if to 'eyesdrop' Sakari at line 10; he turns his orientation towards Sakari and leans closer, gazing at his task-accomplishment and task sheet on the desk (see transcript image). He keeps gazing at Sakari's writing activity for approximately five seconds, turning to his own task sheet when Sakari begins at line 11 what appears as self-talk to check the plural of the word 'thief', a word that was part of Inka's earlier knowledge display. Notice how Sakari pronounces this with more or less as it is pronounced in many standard varieties of English.⁵⁵ Coinciding with this, Jere withdraws his gaze from Sakari's task activity and begins to write.

⁵⁵ The only noticeable difference is in the first sound of the word, which Sakari pronounces as an aspirated [t]. Thus, using IPA transcription, the complete word is rendered approximately as [t^hi:vs] instead of [θi:vs].

However, immediately after the completion of writing, Sakari picks up his task sheet and brings it in front of Jere at line 13 (see image). Such an embodied provision of information in the form of a written task answer treats Jere's prior 'eyesdropping' as having been after that very knowledge. In this way, it exploits the same action format (visually available conduct) in the production of the response as the prior embodied FPP indication of knowledge gap did. Even though a few seconds have passed between what Sakari treats as a first action and his second pair part response, the SPP is the first action Sakari takes after he finishes the writing activity he was doing at the time of the request. This suggests that he orients to the display of his answer as a sequentially appropriate course of action at this very moment. Besides showing his task sheet visually, Sakari also verbally announces his task answer. In doing so, he uses the practice of pronouncing the referent word as if it followed Finnish orthography, which relatively consistently reflects the phonemes of the language (see Iivonen, 2009).⁵⁶ This practice works to exploit participants' knowledge of their L1 to pronounce a word in a way that clarifies and displays a preoccupation with its spelling.

As it turns out, the way Sakari pronounces his utterance at line 14 is different from line 11 and corresponds to an incorrect spelling, that is, 'theives'. The prosodically and visually exaggerated manner (see transcript image) in which Jere responds to this spelling assertion with an open-class repair initiator repair (Drew, 1997) already projects trouble beyond non-hearing. Notice how Sakari's response to the repair initiator at line 16 is not a repeat of the just-prior spelling assertion but instead a repetition of his pronunciation at line 11. As the way Sakari has spelt the word is still ambiguous, Jere attempts to consult Sakari's task sheet (line 17), but the latter keeps it to himself and instead repeats his answer at lines 18-19, again using what amounts to an 'English' pronunciation that conveys a preoccupation with meaning. In response to this, Jere adopts a somewhat 'slack-jawed' expression (transcript image, see also Extract 4) before repeating at line 23 the (incorrect) spelling, using the same practice of pronouncing the referent word as if it followed Finnish orthography. This combination of a highly salient facial expression and a repeat of the spelling at a slowed-down speech rate allows all individual letters and their order to be heard. It also functions as a prompt for Sakari to confirm that the repeat amounts to the correct spelling, and is duly obliged by Sakari at line 24. It is only after Jere withdraws from the sequence to write his task answer that Sakari downgrades his claims to knowledge of the spelling over lines 26-27 and, still using the same practice for 'doing spelling', hedging changes his candidate spelling to 'thieves'. As it turns out, later he also corrects the spelling from 'theives' to 'thieves' in his written task answer.

To summarize, Extract 48 shows how task-related conduct may occasion a knowledge gap and how gazing at another student's task accomplishment may become treated as an invitation to show what the gazed-at student is writing as the task answer. Such an embodied action finds its information-seeking force on

⁵⁶ See also extracts 58 and 60 for more examples of the said practice.

the nature of the activity: not only does it orient to the gazed-at student's writing of task answer as implying that he knows the 'correct answer', but it also orients to that knowledge being relevant to the actions of the gazing student. Similarly, once task answers have been written down, they are part of the linguistic environment of the classroom, and can be oriented to as a locus of information, for example by checking how other students have answered specific tasks. This possibility to ascribe actions to task-related conduct draws on the contextual frames of interpretation provided by the synchronisation of task activities so that all students in the classroom are working on the same tasks at more or less the same time, often monitoring each other's task accomplishment. It not only represents an resource for proficiently interpreting seemingly concise (and from an etic viewpoint incomplete) references such as 'rats' (Extract 9) to refer to parts of tasks but also represents a yardstick by which students index learning as they can design their actions to treat certain knowledge as established or taken-for-granted (this will be addressed in Chapter 5).

4.5.6 Summary

Addressing research question (1), this section has investigated what kinds of resources students draw on for the purposes of identifying a knowledge object and conveying K-epistemic status towards it. As argued in the previous subsections, these resources not only index differential degrees of lack of knowledge, thus constructing different types of social actions, but also invite different kinds of responses from their recipient. For example, the use of polar morphosyntax allows a student to narrow down the range of projected answers to two options, of which one might be presented as more expected than the other. This way, they claim more knowledge concerning what is expected and acceptable as a response.

Besides various morphosyntactic formats for constructing requests for information or confirmation, lack of knowledge can also be indicated by assembling together conversational, sequential and embodied resources. Some actions, or non-actions, which impede the progressivity of talk, such as delay in turn-production or disfluent production of a word, or task-relevant conduct (e.g. looking at somebody's task-accomplishment) may become treated as indicating an unknowing epistemic status. Besides working as a means to establish a student's level of knowledgeability, the way pedagogic artefacts such as task sheets and course texts are handled have an important role in identifying unknown objects in interactional contexts involving task activities, even in cases where the degree of 'unknowingness' is established through verbal turn components. As a great deal of learning activities are organised around written tasks, it is hardly surprising that the very same artefacts are also used as resources for formulating knowledge gaps by directing co-participants attention to them by gazing and pointing at the texts, as well as retelling both verbally and through embodied means their contents.

4.6 Production of an answer and negotiation of its validity

4.6.1 Introduction

For speakers participating in sequences that aim at producing knowledge to fill a ‘gap’, the matter remains to determine not only whether interactional contributions are in fact knowledgeable but also whether they address the said gap. This section⁵⁷ investigates practices around the interactional task of producing and validating answers in response to FPP indications of lack of knowledge, as well as the different sequential trajectories that these practices entail. In terms of the organisation of sequences addressing knowledge gaps, this task frequently becomes visible in and is accomplished through the second pair part as well as ensuing post-expansions to the adjacency pair. Sometimes, however, recipients may initiate insert expansions which project a problem with the provision of a knowledge display as the SPP, and thereby orient to the production of an answer even before the SPP.

The sub-chapter is organised in four sections, of which the first describes knowledge gaps which receive a K+ positioned response that is accepted as such through various practices. The second section focuses on practices around ‘unknowing’ answers, and the third on how the validity or factual correctness of K+ positioned responses is sometimes contested. In the final section, a single case analysis will be undertaken to illustrate interactional work for the maintenance of a shared understanding in sequences addressing a knowledge gap.

4.6.2 Accepting K+ positioned responses

As suggested before in section 4.3, in their simplest structural form, lack of knowledge can be acceptably resolved over the course of a single adjacency pair through which information is invited from a specified recipient, a knowing answer provided by that recipient and accepted by the requester. The social action of ‘acceptance’ can be conveyed more or less explicitly through a variety of linguistic and embodied tokens, as well as engagement in certain courses of action. Consider the following three data fragments:

Extract 49. Do we have to read?

```
01 Paavali -> pitääkö meiän lukee tuo muille
              do we have to read that to the others
02 Jouni   -> joo. (.) >ei siis< kokonaan mutta (.)
              yeah (.) >like not< all of it but (.)
03         -> esitellä ne tärkeet jutut
              introduce the important things
04 Paavali -> (n)okei
              w- okay
```

⁵⁷ This section, and the classification underlying sections 4.6.2-4.6.4, is based on analyses published in Jakonen & Morton (2013). Here, the analyses have been extended and supplemented with additional material.

Extract 50. What is the first answer? (shown previously as Extract 28)

01 Juuso TURNS TO LOOK AT RIKU'S TASK SHEET
 02 -> what is the (.) first-
 {POINTS AT RIKU'S TASK SHEET
 03 SHIFTS GAZE TO OWN PAPERS
 04 (2.2)
 05 Mauri -> he discovered that the- (.)
 {JUUSO'S GAZE TO RIKU'S TASK, THEN TO MAURI
 06 -> >that the blood in the human body< (.) err, (0.6)
 07 -> circulates.
 08 Juuso -> DOES A MINIMAL NOD AND BEGINS TO WRITE

Extract 51. What was that highwayman? (shown previously as Extract 32)

01 Liisa STOPS WRITING, SHIFTS GAZE AND LEANS TOWARDS AULIKKI
 02 -> .hh (.) †mikä se highway man °o°.
 .hh (.) †what °is° that highwayman.
 03 Aulikki †hmh
 04 Liisa -> mikä se highway man °o°
 what °is° that highwayman
 05 Aulikki -> öö se oli niinkö (.) varas
 err it/he was like (.) a thief
 06 Liisa SHIFTS GAZE TO DESK AND CONTINUES WRITING

In Extract 49, Paavali clarifies the procedures related to a summary task by employing a polar request which seeks confirmation that the group has to 'read' their text when reporting their findings to the class. At lines 2-3, Jouni responds with a K+ positioned answer that first confirms the projected positive polarity option of the request ('joo', 'yeah'), but then adds to a somewhat different description of what doing a summary involves, namely 'introducing important things' rather than reading aloud items. Although the response is slightly different from the simple confirmation projected by Paavali's request, he receives the answer with an acceptance token at line 4, and the group continue preparing their task.⁵⁸

In Extract 50, Juuso breaks a silence and re-engages talk during independent task work to request an answer to a task item that he identifies in the verbal part of the turn ('the first') and by pointing and gazing at Riku's task sheet, thereby addressing it to him. As Riku's answer becomes hearably delayed, Mauri secures the progressivity of the sequence by providing a K+ positioned response by reading aloud his answer at lines 5-7. Following Mauri's response coming to a possible syntactic, pragmatic and prosodic (final intonation contour) conclusion, Juuso does a minimal nod and resumes his attention to his own task sheets on the table at line 8, thus ending turn-by-turn talk.

Similarly, in Extract 51, talk is re-engaged during co-presence as Liisa asks what 'highwayman', a word needed to answer a task, is. Aulikki obliges to be-

⁵⁸ Paavali's acceptance token sounds as if it contracted tokens 'no' ('well') and 'okei' together to construct what appears as 'nokei' at line 4. Even if he doesn't take up the slight discrepancy between the projected and the provided answer, such a contracted form of 'well okay' may, at least in principle, index less than full acceptance in some situations.

ing positioned as a knowledgeable speaker and responds at line 5 by providing a Finnish word which represents a somewhat more general concept ('varas', 'thief'), making the less-than-perfect correspondence visible by the use of the qualifier 'niinku' ('like'). Liisa accepts – and is treated by Aulikki as having accepted – the response as she simply resumes her main activity of writing down an answer.

Taken together, extracts 49-51 describe different, yet unmarked ways which students who have indicated lack of knowledge frequently deploy to signal acceptance of a K+ positioned response addressing their knowledge gap. Besides specific linguistic (49) and embodied (50) acceptance tokens, this can also be accomplished by resuming to the main activity which has occasioned the side sequence (Jefferson, 1972) for addressing the knowledge gap – be that activity group conversation or an independent task – as exemplified by Liisa (51) and Juuso (50). Even without explicit tokens of acceptance, such actions which dis-engage talk convey that the received answer is deemed sufficient 'for all practical purposes' (Garfinkel, 1967) of the task activity.


Requesters may also display acceptance of the provided response by indicating a topically related knowledge gap and thereby initiate a new adjacency pair directly after some 'first' knowledge gap is deemed to have been adequately addressed. 'Chaining' (Sacks, 1992a, pp. 252–266) two, or even more, knowledge gaps allows the students to accumulate knowledge on a particular domain beyond what the initial formulation of a knowledge gap entails. This can be seen in Extract 52, in which a knowledge gap regarding the word 'dagger' is being resolved. As was shown previously in Extract 12, the knowledge gap emerged in a situation where one of the students, Inka (mistakenly) read aloud the word 'dagger' in a somewhat illegible course text, pronouncing it 'dogger'. As Sakari and Susanna promptly corrected the word as 'dagger', Inka took a closer look at the text before eventually presenting two information requests, first asking for confirmation of which of them in fact is in the text (lines 13-14), and then enquiring its meaning (line 18). We join in as she does the first request.

Extract 52. Dagger (shown in extended form as Extract 12)



13	Inka	->	[onks] se ↑dogger vai (.) [(dogger)] (.) [vai dagger] is it ↑dogger or (dogger) or dagger
14	Susanna	->	[dagger]
15	Sakari	->	[dagger] (.) da[gger]
16			<da[ggeri>]
17	Inka	->	[what is] a dagge::r {GAZE TOWARDS SAKARI; SHIFT TO SUSANNA

18 Susanna -> it is an (.) [err (.) th]at kind of,
 19 Sakari -> [knife]
 { 'STABS' WITH RIGHT HAND



20 Inka [(net)]
 21 Susanna -> [knife,] (.) err, (0.8) they-
 22 there are err that [kind of in R:unesca]pe
 {GLANCES AT SAKARI
 >meat knife< (.) >meat knife<
 (2.0)
 25 Susanna I wouldn't know [it if I would not have not] err,
 26 Inka [r:::::↑u↓ne:::]
 {GAZE TO TEXT
 27 Susanna played Runescape
 28 Inka -> err, (1.2) how are they similar ((READS A TASK))

Inka's first request at line 13 presents two already-discussed options, 'dagger' and 'dogger', as possible words in the course text. Her leaning close to the text displays to the others an orientation to the knowledge gap as a visual problem. Both Susanna and Sakari position themselves as K+ individuals by providing a 'knowing' answer at the earliest sequential location, precisely at the point when Inka is projected to utter the 'correct' version of the word (dagger), which would draw the turn to a possible syntactic and pragmatic completion. There is further overlap, as Inka repeats the second alternative and Sakari repeats his answer, which he 'fennicizes' at line 16 by adding a word-final vowel.⁵⁹

Having received confirmation from Sakari and Susanna that the unclear word is 'dagger', Inka accepts these K+ positioned responses as correct by moving on with the conversational activity. As opposed to withdrawing from interaction, as Liisa did in Extract 51, Inka proceeds by immediately launching a second request at line 17, switching the linguistic code to English to ask for the *meaning* of 'dagger' in overlap with Sakari's word play. In addition to actions which make sequence closure relevant, presenting a new request which presupposes the just-provided knowledge (that the word indeed *is* 'dagger') builds on the provided knowledge and thereby treats it as unproblematic and accepted. Note how the order in which knowledge pertaining to an unknown word – first identification and then meaning – is in fact the same as how the students went about addressing the word 'conclusively' in Extract 46.

⁵⁹ Kurhila (2006, pp. 111-117) describes how the practice of fennicizing foreign-language words is used in NNS-NS conversations for making unknown referents identifiable and subject to the approval of native Finnish speakers in institutional service encounters. Besides the students being all native Finnish speakers, in this context Sakari's fennicized version of 'dagger' is not prosodically marked as a candidate word (e.g. by means of soft voice, etc.) but is quite affirmatively uttered. In this sense, it represents a somewhat humorous comment presented in and indexing a particular community whose speakers have access to both Finnish and English, similar to what Mori and Hasegawa (2009, pp. 85-88) have described in the context of Japanese FL classroom.

Again, both addressed recipients respond with a similarly knowledgeable positioning: Susanna begins to answer first at line 18, but as she appears to be having trouble in producing an answer, Sakari provides a synonym for 'daggers' ('knife'), coupled with an embodied stabbing action. Note how these responses, in particular that by Susanna, deploy a similar practice to Liisa (Extract 51) to resolve a meaning-related knowledge gap, namely by providing another word ('knife') as a more general yet not entirely corresponding ('that kind of') alternative for the unknown word.

Incrementing her answer, Susanna even connects 'daggers' to an online fantasy game (*Runescape*) at lines 21-22, which she subsequently uses to account for her knowledge of the word at lines 25 and 27 (see also section 5.4). During the account, Inka begins to project dis-engagement from the sequence by orienting to her task sheet, and as it has come to a possible pragmatic and syntactic completion, she begins to read aloud a fragment of a question in her task sheet at line 28. Such termination of the sequence and resumption of the main activity, similar to extracts 50 and 51, signals that the knowledge gap regarding 'dagger' is deemed to have been sufficiently addressed.

Finally, when indications of lack of knowledge receive two responses that assume a K+ position, their similarity with each other as well as relative correctness may represent a matter that needs to be established. Sometimes such multiple responses may be of the same opinion (e.g. extracts 1 and 52) but there are situations in which the responses differ, and their relative correctness may be a matter for all parties to establish, not only something indexed by the actions of the student receiving the K+ response (e.g. extracts 23 and 24). In such sequences, the interactional nature of knowledge becomes vividly expressed.

In summary, when addressed recipients provide a K+ positioned response to an indication of lack of knowledge, the indicator is faced with the task of displaying how such a response is received. Regular ways for accepting the provided knowledge as valid and relevant include the use of acceptance tokens, both linguistic and embodied, as well as resuming the main activity which has occasioned the side sequence (Jefferson, 1972) in the first place. Acceptance can also be displayed by 'chaining' a new knowledge gap which builds on the received response and furthermore treats the recipient as knowledgeable. The use of another morphosyntactic 'question' is not in itself a guarantee that an answer is accepted, as it can be employed to doing rhetorical or counter questions which contest the proffered knowledge.

4.6.3 Practices around K- responses


Indications of lack of knowledge do not always receive a knowledgeable response. Occasionally, they are met with turns that claim insufficient knowledge to resolve the gap and thereby index a K- epistemic status. Such responses may be seen as 'non-answers' in the sense that, unlike knowing answers, they are actions which fulfil the technical requirements presented by a first pair-part information request or some other kind of an indication of lack of knowledge but do not further the progress of the information-seeking activity (see Heritage &

Raymond, 2005; Keevallik, 2011; Stivers & Robinson, 2006, p. 371). It is in this sense also that K- responses can also be seen as dispreferred, i.e. the degree to which they as 'second' actions further the project begun by the 'first' action is less than optimal (cf. Schegloff, 2007, pp. 58–59). In the data, students have various resources at their disposal to overcome the detrimental impact of a K- response – both presented and projected – to the resolution of the knowledge gap. They may assemble together further resources, for example, by presenting the gap to other participants, by initiating repair to address possible trouble with the formulation of the knowledge gap, or by relating the knowledge gap to the pedagogic artefacts. Students rarely abandon their interactional project even after a first K- response but instead frequently attempt to find other resources, generally from other students, to resolve the knowledge gap.

Extract 53 illustrates how a K- response may be addressed by orienting to the obligation of all available and addressed recipients to display their knowledge state regarding the targeted object. In the extract, three students have been working on a group task, although at the beginning of the sequence all are examining their texts. At this point, Liisa notices a word ('convent'), the meaning of which she requests from the two other group members.

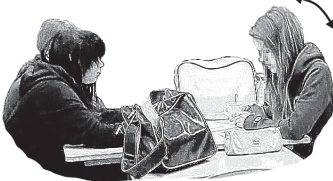
Extract 53. Convent (shown partly as Extract 26)

Outi



Liisa

Aulikki



```

01 Liisa      LIFTS GAZE FROM THE DESK
02           -> ↑mikä o convent
                ↑what is a convent
                {TURNS GAZE BETWEEN AULIKKI AND OUTI}
03           (0.8)
04 Outi      LIFTS LEFT SHOULDER AND TURNS HEAD SLIGHTLY TO LEFT
05           -> (2.0)
06 Liisa     -> Aulikki?
07 Aulikki   °häh°
                °huh°
                {GAZE TOWARDS LIISA}
08 Liisa     -> tiiäksää (mi[kä xx o) convents
                d'y know (what xx is) convents
09 Outi      -> [ >tiäksä mikä o< convents
                >d'y know what is< convents
10 Aulikki   -> SHAKES HEAD AND TURNS BACK TO HER TEXT
11           ((45 SECONDS REMOVED))
12 Outi      -> mut ku h- ↑mikä o convents
                but like- ↑what is convents
13 Aulikki   emmää tiiä mikä o abolished
                I dunno what's abolished

```

As mentioned together with Extract 26, Liisa makes her interrogatively formatted request for word meaning at line 2 available to both of her group members, Aulikki and Outi, by directing her gaze between the two. Self-selecting to take a

turn, Outi lifts her shoulder, thus making an embodied claim of not knowing. This non-answer does not take the project of finding out what 'convent' means, but instead leaves the knowledge gap to be resolved, and since Outi's epistemic status regarding 'convents' has now been displayed, it is Aulikki's participation that is required and missing. This is in fact what is being waited for during the silence at line 5, but as no response is forthcoming and Aulikki keeps her orientation in her own task, Liisa begins to pursue a response. She does so by summoning her (line 6), and after Aulikki has displayed her availability (line 7), both Liisa and Outi deliver a new request at lines 8-9. Note that this is not a simple repeat of the original request at line 2, but instead both speakers now explicitly query after Aulikki's epistemic status. Such a linguistically modified repeat contributes to making the social action as indeed 'pursuit of a response' as opposed to an 'information request' by offering a possible reason (i.e. insufficient knowledge) why the response has not been timely provided. Eventually, Aulikki too claims insufficient knowledge by shaking her head at line 10 (see image), which leaves the knowledge gap unresolved for the time being.

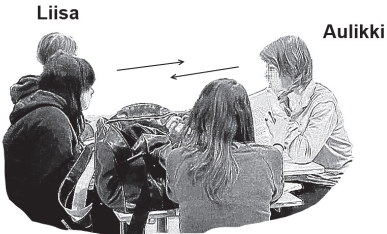

By pursuing Aulikki's response, Liisa reminds her of her obligation to participate in the knowledge-seeking activity, particularly needed as she remains the only possible K+ individual in the group, and even if she is visibly attending to another (independent) activity. However, the question remains why Liisa does not continue the search for the meaning of 'convent' any further by recruiting students outside the group, or the teacher, after both available group members have claimed insufficient knowledge. What constitutes a knowledge gap may be more or less consequential for the accomplishment of a given pedagogic (content) task. Given this, it may be that information pertaining to, for example, crucial aspects of task instruction may be more pursuable than lack of knowledge of a specific word for producing a summary of a content text, which can be overcome by reading around the troublesome word, or by not including it in the questions prepared to other students. On the contrary, knowledge of what 'sum up' (Extract 3) means is crucial to being able to successfully produce a summary of one's own task.

Furthermore, as we see in how the students pick up the topic of 'convents' after a while at line 12, a closure of a sequence addressing a knowledge gap does not necessarily mean the end of that 'interactional project' (Schegloff, 2007, p. 244). Instead, students may try other solutions first and return to some previously developed course of action even beyond the immediate sequential context.

Besides eliciting a response from another student after a first claim of K-epistemic status, other practices may be deployed around unknowing and delayed answers. One regularly employed method involves clarifying how the knowledge gap relates to pedagogic artefacts and task objects, which, as was argued in section 4.5, are routinely used to identify them. These artefacts work as accountable resources which can be oriented to in many ways and sequential positions, and used for constructing many types of actions. For example, when the addressed recipient does not produce a straightforward knowing response

to an information request she can nevertheless display willingness to further the activity by initiating an insert expansion that aims at determining what aspect of the task the requested knowledge is part of. Such accountability of task materials is demonstrated in the following extract, in which Outi, similar to Extract 53, encounters a problematic word (administration) in the course text which describes England under George I. She requests its meaning first from Aulikki, who attempts to clarify it in reference to which task it relates to in the worksheet. As Aulikki nevertheless does not succeed to provide knowledge of the word meaning, Outi then selects a further 'possible knower', Tilda, whose eventual account for lack of epistemic access also attends to the worksheet. We pick up on the course of events just as Outi summons Aulikki (beginning shown in Extract 17).

Extract 54. Administration (shown partially as Extract 17)

<p>06 Outi Aulikki 07 Aulikki häh huh {GAZE TO OUTI</p>	
<p>08 Outi mikä o administration what's administration 09 (1.0) 10 Aulikki -> SHIFTS GAZE TO HER PAPERS ON THE DESK 11 -> missä se lukee where is it 12 Outi tässä beessä, here in B ((task item)) 13 -> (5.0) /A EXAMINES HER TEXT; O MAINTAINS GAZE AT A 14 Aulikki -> emmä tiiä I dunno 15 Outi -> SHIFTS GAZE AND TURNS TOWARDS TILDA 16 Tilda mikä se o Tilda what is it 17 Tilda (ai mikä) (oh what) 18 Outi administration 19 Tilda -> emmä tiiä mää en oo vielä siinä (asti) I dunno I'm not that far yet</p>	

Following an external interruption of a begun sequence (see Extract 17), Outi summons Aulikki at line 6, and once having secured reciprocity, requests the meaning of the word 'administration' at line 8. However, an approximately one second silence takes place (line 9) before Aulikki shifts her orientation to the course materials she has on her table and asks Outi to specify the location of the troublesome word in the materials (line 11). When Outi announces the specific sub-task ('B'), Aulikki continues the examination of the materials on her desk for about five seconds, during which time Outi's gaze is fixed on her, before claiming not to know the problem word at line 14. Notice how, as opposed to Extract 53, here Aulikki does interactional work to provide an answer by clari-

fying the context in which the word is presented. What is more, this work is all the time monitored by Outi, whose fixed gaze treats Aulikki as the holder of the next turn, more specifically, a display of her epistemic status.

Once Aulikki has turned out to be unknowing regarding the word meaning, Outi redirects the knowledge gap to a new 'possible knower', Tilda. Outi's second information request is designed so as to presuppose Tilda to have been following the prior request presented to Aulikki, as the word 'administration' is now referred to with the pronoun 'se' ('it'). As it turns out, such a recipient design proves unwarranted, as the students have to establish over a repair sequence what 'it' really refers to (lines 17-18). Like Aulikki, Tilda too claims not to know at line 19, an action which terminates the sequence.

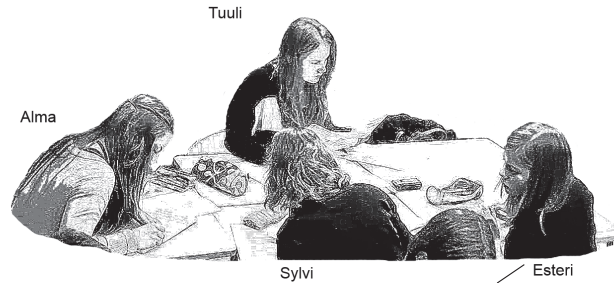
The (unknowing) responses in Extract 54 by Aulikki and Tilda rely on the same physical artefact, the pedagogic worksheet, to construct two different ways of attending to the lack of an invited response. The silence at line 9 following an information request FPP means that Aulikki's answer is 'officially absent' (Schegloff, 1968, p. 1083). It is this immediate context that renders Aulikki's subsequent repair initiator at line 11 its interactional import as an attempt to work out a sufficient answer when an immediate K+ response is unobtainable by re-examining the very artefact that has occasioned the knowledge gap in the first place. As a recipient action, claiming insufficient knowledge this way can be seen to contribute more towards social alignment as the provision of a stand-alone 'I don't know' (e.g. Extract 53; see also Keevallik 2011), as it indexes greater investment and willingness to participate in the interactional project begun by the sequence initiator. At the same time, such a display of checking the text to see if a knowing response can be inferred from it legitimizes insufficient knowledge and non-understanding by conveying that the recipient has at least 'given it a try'. This function of the pedagogic artefacts as an accountable source of knowledge is also oriented to in Tilda's response to the redirected query (line 19), yet in a different manner. Her turn-initial claim of insufficient knowledge is immediately followed by an account that claims she has not yet progressed far enough in the task. Such an account implies that if she had indeed completed the specific task item, she could be expected to know what 'administration' means. As opposed to Aulikki, however, she does not go out of her way to check the worksheet.

An orientation to knowledge as something that is the result of task work may also be visible in other sequential locations, in the form of a precondition to the whole sequence. Consider Extract 55 (p. 190), in which Esteri turns towards Sylvi during independent seat work and begins a turn which she nevertheless cuts off.

As Esteri shifts her orientation from her course text to Sylvi (see image), she begins a turn that syntactically projects a polar request for what Sylvi (and possibly Alma⁶⁰) are writing as their task answer, a frequently used design for a pre-request that checks the preconditions for subsequent talk about 'correct

⁶⁰ Throughout the sequence, Esteri uses the second person plural, even if her gaze only appears to attend to Sylvi's progression with the task.

Extract 55. Abandoned request



01 Esteri LIFTS GAZE FROM COURSE TEXT AND LEANS TOWARDS SYLVI
 02 -> °kirjotakste-°
 °do you write / are you writing°
 03 (0.6)
 04 STRAIGHTENS HER POSTURE
 05 -> °aa te ette oo vielä siinä°
 °oh you're not there yet°

answers' (see e.g. Extract 10). However, Esteri's turn at line 2 is cut off, and after a 0.6 second silence, she returns to 'home position' (see e.g. Schegloff, 1998) to investigate her course text and provides an account for the abandonment of the first pair-part action and withdrawal from the sequence (line 5). This account attends to the (slow) progression of the other students in completing the items of the worksheet. Similar to Tilda's account for not knowing in Extract 54, Esteri's account treats the completion of a task item as a precondition to being able to provide a K+ response. Although the accounts are provided by participants with different interactional roles (recipient and requester), both imply that by 'being there' a knowing answer could be provided. As such, the accounts construct knowledge as something that 'anyone' can discern by examining course texts, and the student's responsibility to know as something that is based on undertaking such activities.

Lastly, in an attempt to help out the sequence initiator, the recipient can contribute towards the resolution of a knowledge gap by offering their own task answers in situations in which the provision of a knowledgeable answer is somehow troublesome. This allows the participants to 'move the goalposts' of the knowledge gap so that the recipient can *avoid* making a K+ positioned claim as regards the original formulation of the knowledge gap but can nevertheless hold a knowledgeable position concerning her own task answer. This can be seen in Extract 56, in which Tuuli checks whether her account for the causes of the Great Fire, found in the course text, amounts to a correct answer.

Extract 56. Baker's peel (complete sequence shown as Extract 10)

05 Tuuli -> onkse ↑sitte tämä <juttu>
 is it this <thing> ↑then
 {MOVES FINGER ON THE TEXT
 {GAZE BACK TO SYLVI
 06 Sylvi SHIFTS GAZE TO TEXT
 07 Tuuli että mikä pitää kirjottaa ku siinä lukee jotai et se
 that you have to write cos it says something that he

08 niinku (.) heilutti sitä
 like swung it
 {SWINGS HANDS FROM SIDE TO SIDE
 09 (8.5) / TUULI'S GAZE TO TEXT;
 AT 2.5 S GLANCES AT ESTERI
 10 Sylvi -> °°emmää tiiä°°
 °°I *dunno*°°
 {SHAKES HEAD
 11 Tuuli TURNS THE PAGE KEEPING GAZE ON TEXT
 12 (6.5)
 13 Sylvi -> mää kirjoti vaan että- (1.6) mmh (.) että
 I just wrote that- (1.6) mmh (.) that
 14 it started from a wooden house in Pudding Lane
 {TUULI GAZE TO SYLVI
 15 Tuuli -> joo
 yeah

At lines 5 and 7-8, Tuuli draws Sylvi's attention to a specific bit of the course text and requests a confirmation about whether that bit contains the correct task answer, one that 'you have to write', thereby making Sylvi's K+ response conditionally relevant. However, there are signals that its production is problematic: not only is such a response massively delayed as Sylvi maintains her gaze on her text (line 9), to the degree that during the 8.5 second silence Tuuli even appears to check Esteri's availability by glancing towards her. Following the silence, Sylvi confirms the projected difficulties in obtaining a knowing response and claims insufficient knowledge at line 10. However, after Tuuli has visibly withdrawn from turn-by-turn talk to investigate her own copy of the text, Sylvi provides what she has answered to the task, a description of the location of the starting point of the fire (lines 13-14). Note how it is produced as 'just' ('vaan', see VISK §828) what she has written in her own answer, a formulation that is offered as a personal judgment that does not claim knowledgeability regarding what amounts to the 'correct' answer, as originally requested by Tuuli. Even if such a response is different from that which was projected by the request, it is nevertheless accepted by Tuuli at line 15.

Re-negotiation of what exactly constitutes the knowledge gap can be seen as co-operation towards securing a 'best guess' for an answer in a situation where the provision of a K+ response is problematic. In Extract 56, such a personal judgment was added to an explicit claim of no knowledge by the addressed recipient (Sylvi). Re-negotiation of the terms of the knowledge gap can also be initiated by the requester, as was the case in Extract 11, in which the participants end up sharing their task answers following an information request on the meaning of the word 'occupy'. Such practices, similarly to checking the text for possible inferences (Extract 54) index greater recipient responsibility towards obtaining a resolution to the knowledge gap than standalone claims of insufficient knowledge. Seen this way, the response turn and possible insert expansions that address the terms of the knowledge gap are sequential loci for re-negotiation of a) the positioning by the FPP indication of lack of knowledge of the addressed recipient as 'possible knower', and b) the recipient's degree of moral responsibility to participate in the sequence.

4.6.4 Contesting knowing answers

Addressing an indication of lack of knowledge to a specific recipient treats that recipient as someone who may and is perhaps even likely to be able to provide the missing knowledge. Aside this projected knowledgeability, the addressed recipient may turn out to take a more or less knowing epistemic position regarding the knowledge object being requested, as sections 4.6.2 and 4.6.3 have described. Whenever the recipient displays or claims knowledge, the participants are faced with the task of deciding whether that response is in fact 'correct'. Most of the time, this interactional task is implicitly conducted, such as when requesters unproblematically accept K+ positioned responses by moving on with their main activity or by presenting further requests. Participants may also mark some K- positioned responses as 'best guesses', showing their orientation to the degree of veridicality of interactional turns.

The interactional work conducted to negotiate the truthfulness of a knowing response becomes plainly visible when the sequentially next turn is used by the requester to disagree with the offered information by contesting the underlying K+ position. This is frequently dealt with in and through sequence expansions as students may need to assemble further resources to decide what in fact counts as the 'correct' answer. Such visible negotiation work can be seen in the following extract in which Matti asks Paavali's confirmation for whether rats that were thought to have caused the outbreak of plague (in 1665) came from Indonesia. Instead of confirming this, however, Paavali suggests another country.

Extract 57. Indonesia (shown previously as Extract 37)

```

01 Matti      STOPS WRITING AND SHIFTS GAZE TO PAAVALI
02           -> tuliko ne      Indoneesiasta
                did they come from Indonesia
03           (0.7)
04 Paavali -> <Intiasta>
                <from India>
                {LIFTS GAZE TO MATTI
05           (0.8)
06 Matti     -> Mauri puhu    jostai Indoneesiasta
                Mauri talked about some Indonesia
07 Paavali   Intiasta
                about India
08 Matti     CONTINUES WRITING

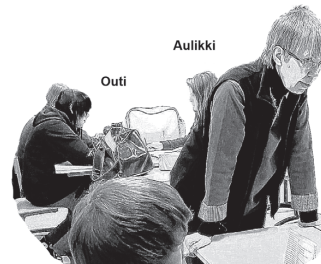
```

As noted in conjunction with Extract 37, Matti uses Finnish polar interrogative syntax to present a request about the origin of the plague-causing rats, referring to them with the person pronoun 'ne' ('they'). However, Paavali responds after a 0.7 second silence with an answer which, while claiming K+ status, disagrees with the preferred polar option conveyed by the request by asserting another country (India) as the origin of the rats (line 4) without mitigation. Now that two possible options for the resolution of the knowledge gap have been put on the table, Matti's next step at line 6 is to provide the grounds for the predisposi-

tion to Indonesia in the design of his prior request. These grounds are namely that another student, Mauri, had mentioned the country earlier, a claim that indicates to Paavali where Matti had obtained information on 'Indonesia'. The claim also reasserts Matti's commitment to the correctness of his position and by implication contest Paavali's K+ response that had stated India as the origin country. As noted earlier (p. 155), Paavali's response to this at line 7 is not a repeat of his original K+ response at line 4 but instead a reply to the challenge to his K+ status accomplished by Matti's just-prior turn. In other words, Paavali's turn does not contest the fact that Mauri had indeed said *something* but maintains that what he had given as the origin of the rats was India, not Indonesia. This is clear from how the second occurrence of 'Intiasta' ('about India') suffices to close the sequence, which a simple repeat of the previous response would be unlikely to accomplish when it follows a turn that has contested it.

Besides providing justification for a certain epistemic position, students may draw on additional epistemic resources in order to establish which one out of two (or more) different K+ positioned responses amounts to the 'correct' answer. In section 4.6.2 it was already noted that when knowledge gaps receive two different K+ responses (e.g. extracts 23 and 24), the participants providing these responses may engage in interactional work, often drawing on course materials, to determine the relative ranking of the responses. One available external resource in the classroom is the teacher, who is generally speaking treated as a speaker with primary epistemic status regarding issues related to classroom tasks. Consider the next extract in which Aulikki indicates lack of knowledge regarding the spelling of the word 'marriage' but nevertheless does not accept Outi's K+ positioned response immediately. Instead, Aulikki asks the teacher for a second opinion before treating the matter as solved. In the extract, the speakers employ the practice of pronouncing the referent word spelling as if it followed the conventions of Finnish orthography (see also Extract 48), represented in the extract with IPA transcription.

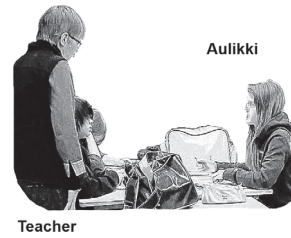
Extract 58. Marriage II (shortly after Extract 13)⁶¹



- 01 Aulikki -> ↑mɪtɛ /mæɪɪdʒ/ kirjotetaan
↑how do you spell marriage ✓
- 02 Outi -> /mɑ/ (.) [eɪk se oo-] (.) </mar:iage/>
isn't it /mar:iage/
- 03 Aulikki [m α r ɪ dʒe/
- 04 (1.5)
- 05 Aulikki -> (aɪ o) ((CREAKY VOICE))
(oh is it)

⁶¹ To describe speakers' pronunciation of the word *marriage*, as part of the practice of saying the word 'as if it were Finnish', which in this extract is used to render the two spelling options, the word has been transcribed using IPA transcription which is separated from the Jeffersonian transcript by forward slashes (/ /).

06 (1.0)
 07 Outi -> ei ku emmää tiiä
 no I mean I dunno
 08 T okay ((COMES NEAR THE GROUP))
 09 Aulikki ↑how we write /mæɪɪdʒ/
 10 T err </mar:ɪage/>
 11 Outi kato mää osasin
 look I knew



Lack of knowledge is indicated when Aulikki requests how the word ‘marriage’ is spelt at line 1, using Finnish wh-question morphosyntax and uttering the word with a pronunciation that approximates many standard varieties of English. At line 2, Outi begins to answer with what appears to be the provision of a straightforward, ‘no-trouble’ phrasal response, which have been found to unproblematically accomplish answering (cf. Fox & Thompson, 2010). However, she quickly repairs this by cutting off and beginning a new answer that employs negative interrogative morphosyntax, a clausal response design that conveys a downgraded epistemic stance in relation to the cut-off response. While Outi is accomplishing this recalibration of the degree of her knowledgeability, Aulikki also increments her request with a candidate answer, overlapping Outi’s production of negative interrogative structure (‘eik se oo’, ‘isn’t it’) at line 3, an action which in effect changes her request from a wh-interrogative to a polar request (on whether ‘maridge’ is the correct spelling of the word ‘marriage’). Once the overlap has cleared, Outi asserts her answer (i.e. the spelling is ‘marriage’) using the practice of pronouncing the referent word spelling as if it followed the conventions of Finnish orthography, which, as was mentioned earlier (see Extract 48, also Iivonen 2009), relatively consistently reflects the phonemes of the language. Doing this allows the participants to draw on cross-language differences in phoneme quality and quantity to mark between an orientation to spelling and word meaning. In terms of phoneme quality, the speakers use two allophones of ‘r’ in the word ‘marriage’, so that Aulikki uses at line 1 an alveolar approximant, represented as [ɹ] in IPA transcription, to approximate a standard English pronunciation. Later, at lines 2 and 3, the two students signal their preoccupation with establishing the word spelling with an alveolar trill [r], a lengthened pronunciation of which [r:] corresponds to a spelling of double ‘r’ in Finnish (see Iivonen, 2009, for a description of the phonetic features of Finnish). For the vowel quality, the speakers alternate between ‘ɑ’ and ‘æ’ for the first vowel of the word to mark shifts between orientation to spelling and word meaning.

By the end of line 3, two different spellings for the word ‘marriage’ (i.e. ‘maridge’ and ‘marriage’) have been put forward. This is followed by quite a lengthy silence after which Aulikki asks Outi to reconfirm her K+ positioned response – thereby contesting its correctness – using creaky voice at line 5. Aulikki marks Outi’s response as something unexpected and even surprising with the Finnish response particle ‘ai’ (Kurhila, 2006, pp. 57–60; cf. Sorjonen, 2001) as well as repeating the verb used in the response. Having been contested, Outi further downgrades her epistemic stance from an assertion of information

at line 2 to claiming insufficient knowledge at line 7.⁶² This she does by means of the particle 'eiku' (~ 'no but'), which can be used as a lexical device to project the beginning of self-repair (cf. Sorjonen & Laakso, 2005, p. 251). However, here it appears to attend to the knowledge state indexed by Outi's previous turn by repairing the previous stance with a new one.

By the end of line 7, two candidate spellings for 'marriage' have thus been proposed, and Outi has epistemically 'backed down' and left Aulikki with her own candidate answer, which she added to her information request at line 3. As the knowledge gap is still unresolved, Aulikki seizes group-external resources by soliciting the attention of the teacher, who has been going round the classroom and, having approached the group, has made herself available at line 8. Aulikki switches to English to present the knowledge gap to her through a design that corresponds to line 1, using a similar pronunciation of 'marriage' and a wh-interrogative morphosyntax. Note how the teacher's first port of call is to use the same practice as the two students did earlier to deliver the correct spelling of the word and to validate Outi's original K+ positioned response by using a phrasal response that treats the asserted knowledge as unproblematic (cf. Fox & Thompson, 2010). Outi's retrospective claim to knowing at line 11, addressed to Aulikki, explicitly directs her attention to the teacher's ratification of Outi's knowledgeable ability using the particle 'kato' as an attention-seeking device (cf. Hakulinen & Seppänen, 1992). In this conjunction, the temporal dimensions of knowing established by the simple past tense ('määtiesin', 'I knew') refer to her contribution to the activity at line 2.

Contesting the correctness of a K+ positioned response need not be done immediately following its provision. In Extract 59, Sakari contests Susanna's previous claim given in response to his indication of lack of knowledge which enquired what a 'pudding' is shortly before the class were shown a video recipe for Yorkshire puddings (see Extract 4). The following sequence takes place immediately after the end of the video which has shown the baking of a very different kind of 'pudding' from the translation offered earlier by Susanna (i.e. 'vanukas', 'custard'). It is just this mismatch between the kind of 'pudding' seen on the video and the conceptual category of 'custard' given earlier by Susanna that Sakari retrospectively contests in Extract 59.

Extract 59. Yorkshire pudding II

01		T and †that's what they
02		supposed to look like.
03	Sakari ->	they have to be fluffy
	->	<vanukasta.> (.) joo.
		<custard.> (.) yeah.
		{SHIFTS GAZE TO SUSANNA
04		and uhh (.)
05		when it says the oven
06	(9.0)	you have to keep that
07		(.) tray in the oven
08		for twenty minutes

⁶² See also Schegloff (1996, pp. 80–81) for an example of how a turn may epistemically upgrade a previous action.

09			before you put
10			anything there. (.)
11	Sakari	TAPS THE DESK & LEANS TOWARDS SUSANNA	so it is (.) hot
12		-> säähä sanoit et but you said that	
13		-> tuo on <vanukasta.> that is <custard.>	
14		(0.9)	and that's how you eat it
15	Susanna	-> ei vaan <pudding> (.) no but <pudding>	
16		-> tarkottaa vanukasta means custard	it's a Sunday meal.
17	Sakari	-> nii. yeah	you eat it with meat
18		(1.3)	(not xxxxx).
19		-> nii yeah {SAKARI'S GAZE TO OHP	
20		-> tuo ei oo vanukasta that is not custard {SUSANNA'S GAZE TO OHP	this is a like
21			a Finnish ohukainen
22		(2.4)	but you eat it
23			with meat and
24	Susanna	nii mutta pudding= yeah but pudding= =tarkottaa (.) =means (.)	it's a Sunday meal.
25		>vanukasta< >custard<	okay.
26			
27	Sakari	-> lol.	
28		TAKES HIS CUP AND LEAVES THE TABLE	

As the video recipe draws to an end, the teacher confirms at lines 1-3 that the Yorkshire puddings displayed on the screen are what they are 'supposed to look like', in other words conveys that they are proper instances of the category they represent. Having had access to this visual and verbal evidence that at least some kind of puddings are savoury goods that are baked in the oven, Sakari shifts his gaze to Susanna and repeats the translation ('vanukas' ~ custard) she gave earlier. Sakari renders his turn as an ironic, even mocking, 'agreement' by announcing a category that generally does not accommodate such baked goods seen on the video with highly modified prosody (sound stretch, emphasis), and by following it with an agreement token ('joo', 'yeah'). This repetition of Susanna's previous knowledge display, produced as ironic in the light of new evidence, retrospectively contests its very correctness.

However, Sakari's turn does not receive any uptake from Susanna, who is instead following the simultaneously on-going teacher's clarification of the baking instructions. After approximately 9 seconds, Sakari pursues Susanna's response at lines 11-13 in an upgraded format. He makes the recipient selection unambiguous by leaning closer to Susanna and tapping on her desk. In terms of the contesting action, Sakari reminds Susanna that she indeed was the speaker who provided the (just-proved erroneous) translation at the time ('säähän

sanoit', 'you said'). Susanna's response at lines 15-16 insists on her K+ status by maintaining that 'pudding' in fact 'means vanukas'.

Notice how Sakari uses the discourse particle 'nii' ('yeah', 'so') to receive Susanna's (re-)assertion of what 'pudding' means. Although the particle is often used to claim recognition with the referent or state of affairs being talked about (see Sorjonen 2001, also VISK §1046), Sakari's turn illustrates how its use does not necessarily involve commitment to, or agreement with, the knowledge being at stake. Rather, both instances of 'nii', the one given in response to Susanna's assertion (line 17), and the one following a lengthy silence during which Susanna fails to respond to the first 'nii' convey here that Sakari has registered that *Susanna* seems to think that pudding means custard, not that *he* would agree that it does. The fact that Susanna's non-uptake during the silence at line 18 constitutes a failure to see the significance of Sakari's argument is indexed by the second, more emphatic production of 'nii' and its position to preface the drawing of Susanna's attention to external evidence countering her claim at line 20. Referring to the video shown on the overhead projector, Sakari states that the Yorkshire pudding ('tuó', 'that') displayed is not 'custard'. As it turns out, after approximately 2.4 seconds, during which Susanna's gaze is directed towards the video screen, she turns back to face Sakari and once more reasserts her position that 'pudding' means custard. Such insistence in plain view of contrary video evidence, is treated by Sakari as a 'hopeless case' as he terminates the sequence by leaving the table and makes clear that Susanna's K+ position has most certainly not been ratified by the use of the acronym/token 'lol' (lines 27-28)

The heart of the argument about the meaning of 'pudding' appears to be related to how such a conceptual category is formed and where its limits may be found. Notice how before the video, Sakari requested from Susanna a translation of 'pudding' (see Extract 4), for which 'vanukas' is on some occasion a perfectly legitimate choice, namely to describe custards. It is this meaning, however partially it corresponds to the use of 'pudding' in a British English context, which Susanna is sticking to in Extract 59. On the other hand, Sakari's contestation is occasioned by the video that quite clearly shows another kind of usage, namely to refer to a baked savoury dish made using a batter. Interestingly, neither speaker brings up the inclusion of the determinant 'Yorkshire' in the name of the dish as something which may change its meaning: Sakari's turns equate the Yorkshire pudding seen on the video as an unproblematic instance of the category of pudding-as-custard, as (in his opinion, wrongly) defined and insisted by Susanna. On the other hand, Susanna's insistence at no point addresses what is seen on the video, that is, whether such instance is or is not a 'pudding'.

To sum up, the epistemic positionings and claims to a specific distribution of knowledge established locally as indices of certain interactional roles (such as requester, information provider etc.) are subject to re-negotiation at any time during and after the sequences in which lack of knowledge is addressed. As illustrated in Extract 58, such renegotiation may be made relevant when re-

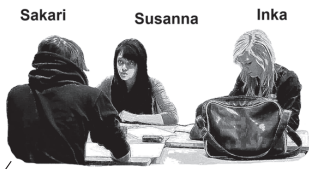
requesters revise their epistemic stance by adding an incremental candidate answer to their request (line 3) or contest the correctness of the offered response by requesting its confirmation (line 5). Some ways of determining which of the answers is 'correct' are to look for external resources such as the teacher to ratify one alternative over the other (Extract 58), to assemble the grounds supporting a given alternative (extracts 57 and 59). Similarly, K+ positioned participants may downgrade the claims to knowledge made through their responses (Extract 58), sometimes in order to back down from possible disagreement (see Koshik, 2002a, pp. 1856–57), as well as insist on their correctness either in response to being contested (extract 57) or through retrospective claims (58 and 59).

4.6.5 Negotiating the terms of a knowledge gap

The previous sections have described how students manage the production and validation of knowledge in response to indications of lack of knowledge by accepting answers as indeed knowledgeable (4.6.2), by finding ways to remedy projected or uttered K- responses (4.6.3) as well as by negotiating which one out of two K+ positioned response is to be seen as 'correct'. Most of the time, when a search to resolve a knowledge gap is initiated, it involves speakers who align themselves with regards to the formulation of the gap they are at the time resolving. This is the case even in sequences such as 'Occupy' (Extract 29) in which the participants jointly establish that some responses are to be taken as 'best guesses', that is, answers which respond to a different knowledge gap than the one originally indicated. Even then, the requesters are treating the response as sufficient and relevant for their interactional project by virtue of an orientation to the unobtainability on that occasion, between those participants, of a K+ response that would resolve the original knowledge gap. However, the successful production of knowledge through such sequences depends on more fundamental issues related to the maintenance of a shared understanding of the practical terms of the knowledge gap between the participants. As previous CA research has illustrated, sequence organisation and repair organisation provide speakers with procedural resources for accomplishing 'intersubjectivity' by examining turns as displays of understanding of the immediately previous turn, and enabling the initiation of repair to address possible trouble sources at a variety of sequential positions (Heritage, 1984b, pp. 254–260; Macbeth, 2011; Schegloff et al., 1977; Schegloff, 1991, 1992). Occasionally, such issues will need to be addressed before students can conduct activity-related moves, such as claiming, displaying and contesting knowledge. Consider the next extract in which the student group are engaged in independent essay writing when Sakari re-engages talk and requests the English spelling for the word 'mustelmia' ('bruises') from Susanna. However, there is confusion as regards to what is the exact knowledge object being requested.

Extract 60. Bruises

Sakari Susanna Inka






01 Sakari -> miten kirjoitetaan (.) mustelmia
how do you write (.) bruises

02 Susanna -> hmh
{SHIFTS GAZE FROM HER TASK TO SAKARI}

03 Sakari -> mustelmia
bruises

04 Susanna -> RAISES HAND, PALM UPWARDS, THEN PUTS IT ON THE TABLE
05 (2.0)
06 SMILES AND LEANS FOREHEAD AGAINST THE BACK OF HAND

07 Sakari -> englanniks
in English


08 Susanna -> RAISES HEAD AND SHIFTS GAZE TO SAKARI, SMILING

09 -> hh emää en tiiä oota
hh I dunno wait

10 RESTS CHIN AGAINST HER PALM, GAZE UPWARDS
11 (1.5)

12 Sakari -> joku /bru:ses/
something like /bru:ses/
13 (1.7)

14 Susanna -> joo
yeah
{SHIFTS GAZE TO SAKARI}



15 Sakari -> nii mut mite=
yeah but how=

16 Susanna -> =ei (.) ne o arpia
=no (.) they are 'arpia' ((scars))
17 (1.0)

18 Sakari -> °hhjoo°
°hh yeah°
19 (0.6)

20 Susanna -> no onha
well yes they are

21 Sakari -> @no hhjoo@
@well yeah/yeah right@

22 2.0 / AT 1.2, SU MOVES EYEBALLS TO TOP LEFT CORNER


23 Susanna -> (eiku)
(no I mean)



24 SHIFTS GAZE TO INKA; INKA'S GAZE ON SUSANNA
25 -> mikä o mustelma englanniks
what's 'mustelma' in English
26 (1.0) / INKA YAWNS AND SHIFTS GAZE TO SAKARI

27 Susanna -> black (lälläl) ((SMILES))

28 Inka -> black fholef

29 Susanna -> [hhh hehe
{GAZE TO SAKARI}



- 30 Sakari [eiku- (.) black dots
no I mean (.) black dots
31 (0.9)
- 32 T <okay>
{WALKS BEHIND SAKARI
- 33 Sakari -> what is (.) like (.) mustelma
34 T PLACES BOTH HAND ON THE DESK AND LEANS FORWARD
35 -> /bru:si:s/
36 (.)
37 >I'll give you-<
{BEGINS TO WALK TOWARDS HER DESK
38 I'll give you a ha- (.) dictionary here (-)
39 (1.4) / SUSANNA LOOKS AT SAKARI, SMILING
- 40 Susanna -> fsss(h)hhE
-> {SHOWS 'THE FINGER' TO SAKARI
{INKA SHIFTS GAZE FROM TASK TO SAKARI
41 (2.2) / SUSANNA SHIFTS GAZE BACK TO TASK
42 Sakari /pruses/
- 
- 

The sequence begins as Sakari interrupts his independent task work to request how the Finnish word 'mustelmia' ('bruises') is spelt at line 1. Note that line 1 does not detail the language in which he wants to spell the referent word. Such a turn design could therefore possibly be responded to by answering how the word 'mustelmia' is spelt in Finnish. However, bearing in mind the English-medium classroom context, it is more plausible (and as the rest of the sequence makes clear on this occasion) to hear it as a request for the spelling of an English word that would have a meaning corresponding to 'mustelmia'. In the latter case, the turn is a 'double' request as it presupposes the recipient is familiar with such a corresponding word and also asks for its provision. Following Susanna's open-class repair-initiator (Drew, 1997)⁶³, the turn gets repaired as Sakari simply repeats the target item at line 3. By leaving out the reference to spelling, he, however, makes the second occasion of the request ambiguous as regards what the specific knowledge gap is, or which operation he invites Susanna to perform to the word. In other words, line 3 could be heard as a confirmation to provide an English word for 'mustelmia'.

At a sequential location in which a knowledge display has been made conditionally relevant, Susanna does instead an intricate series of hand gestures at lines 4-6 (see transcript images). She begins this by withdrawing from mutual gaze and shifting her gaze to the open palm she holds in front of her (first image). However, she quickly places her hand on the desk and cracks into a smile

⁶³ As the previous sections have shown, tokens such as 'huh' or 'hmh' in response to turns that re-engages lapsed talk are frequently used to signal availability for talk. In light of the data for this study, they seldom appear to project any subsequent trouble with e.g. the terms of the request but instead often receive a turn that attends to them as having meant the FPP request was not heard (such as repeats of the FPP).

(second image) only to subsequently lean her forehead against the back of the same hand (third image).

What interactional ‘meaning’ this choreography conveys is left ambiguous, but it may orient to her not being able to provide a knowledgeable answer to Sakari’s request. The withdrawal of gaze from co-present parties, in this case by shifting it to the open palm, is regularly used to index that a word search that is to be conducted alone is taking place (Goodwin & Goodwin, 1986). Moreover, an empty palm displays exactly that it is empty, i.e. that something is missing. Seen this way, Susanna’s subsequent smile and leaning of her forehead against the back of her hand have a somewhat self-sanctioning quality: she is treating the answer as somewhat ‘elementary’, something that she should know and be able to produce. Notice how Susanna begins her smile only *after* the open-palm gesture, which indexes the smile’s function as a reaction to that gesture as opposed to, for example, treating Sakari’s word choice as amusing for the essay task by virtue of immediately following it. However, Sakari reacts to Susanna’s embodied conduct by further clarifying the terms of his knowledge gap – namely that he is interested in (the spelling of) an English word for ‘mustelmia’ (line 7). Such an action treats Susanna as having conveyed through her smile and gesturing an understanding that Sakari may be after the spelling of the Finnish-language word, in which case the smile is open to being interpreted as ridiculing Sakari for presenting as simple a question.

Following the clarification of the language of the spelling being resolved, Susanna claims K-epistemic status but, nevertheless, displays her willingness to help out to resolve the gap by putting the sequence progression on hold (‘oota’, ‘wait’) and assuming a ‘thinking face’ (Goodwin & Goodwin, 1986; Hellermann & Doehler, 2010), gazing up (lines 8-10, see image). Such a use of a claim of no knowledge as a prepositioned hedge (cf. Weatherall, 2011), in this case for some delayed but projected response amounts to co-operative participation in Sakari’s interactional project (cf. section 4.6.3). The similarity of this gesture to the one deployed before the clarification, as well as how seamlessly Susanna moves from one to the other connects these series of gestures as conduct concerned with finding the knowledge object and sanctioning her own ‘not knowing’.

As Susanna is ‘thinking’ for a possible response, Sakari upgrades his epistemic position by providing at line 12 a candidate English-language word, ‘bruuses’, whose correct spelling he is after.⁶⁴ However, the way Susanna, following a fairly lengthy silence, receives the candidate word with an acceptance token at line 14 and does not suggest any spelling for it indicates that for her the pursued knowledge object is the English-language translation of ‘mustelmia’

⁶⁴ The way Sakari pronounces the word – using an alveolar trill and what approximates the sound [e] as the final vowel of the word – would in the context of the practice of saying a word ‘as if it were Finnish’ (see Extract 58) signal a spelling ‘bruuses’. However, the way Sakari treats Susanna’s following acceptance token (‘joo’, ‘yeah’) as a contribution that has failed to address his knowledge gap (instead of having confirmed ‘bruuses’ as the correct spelling), suggests that his pronunciation at line 12 is preoccupied with meaning and not an instance of doing the said practice.

rather than its spelling, something which Sakari's subsequent turn at line 15 also attends to. Thus, at this stage, a misalignment to searching a resolution to different kinds of knowledge gaps has been made evident.

At this point, Susanna changes her position and contests Sakari's earlier suggestion of 'bruises' as the English-language equivalent of 'mustelmia'. She does this by presenting another Finnish word, 'arpia' ('scars') as the correct translation of 'bruises' at line 16. This action efficiently halts the search for the correct spelling, as the speakers will first have to agree upon an appropriate English word, the spelling of which they can then determine. Unlike Matti in Extract 57, Sakari does not back down but uses soft voice and flat intonation to negate the social action conventionally achieved by the acceptance token 'joo' ('yeah') at lines 18 and 21. With no side initially qualifying their claims to knowing what 'bruises' means, the apparent stalemate becomes a matter to be solved by means of external resources, in a similar fashion to Extract 58. Susanna's facial micro-gesture of moving eyeballs to top corner at line 22 during a 2.0 second silence already projects that she might be backing down. At line 23 she uses the particle 'eiku' (~ 'no but') to project the beginning of repair (cf. Sorjonen & Laakso, 2005, p. 251), which, similar to Extract 58, attends to the degree of knowledgeability she has previously indexed. Following this, Susanna turns to the third group member, Inka, to request for the correct English translation of 'mustelma' (singular of 'mustelmia'), thereby asking her to be an arbiter for the dispute.

As a post-insertion to her request, Susanna provides a half-nonsensical candidate translation ('black lälläl') for 'mustelmia', which contributes towards relaxation of the disagreement and achieves a mode switch as it is followed by further language play from Inka⁶⁵. As the speakers are providing new candidate translations over lines 28-30 as unproblematic (K+) responses (cf. Fox & Thompson, 2010), they are nevertheless marking them as non-serious by mutual smiles and laughter. It is only when the teacher approaches the group's table and Sakari defers the matter for the word meaning to her at line 33 that the more serious quest continues. The teacher's response (line 35) ratifies the correctness of Sakari's original display of knowledge, that 'mustelmia' is indeed 'bruises' in English. By bringing him a dictionary, she orients to the search as a spelling-related one – after all, the students are supposed to be writing individual essays. After the teacher has left the group, Susanna jokingly reprimands Sakari for his recently ratified K+ status by giving him the finger, accompanied with what sounds like chuckled laughter particles.⁶⁶

⁶⁵ The root of the Finnish word 'mustelma' is 'musta', black. This means that it may be that Susanna's candidate answer at line 24 *begins* as a more 'serious' word search, but instead turns into language play within the same TCU. 'Lälläl' is not an existing word in Finnish, but is hearable as 'baby babble'.

⁶⁶ There is also the possibility that the teacher treats the sequence as a disturbance to classroom work and by bringing the dictionary attempts to discourage conversational exchanges such as this during independent work. Given that the teacher provides the plural ('bruises') of the word when being asked for the singular ('mustelma'), it may be that she has overheard Sakari's earlier turns, and would thereby orient towards confirming their status as knowledgeable. However, there seems to be nothing

Extract 60 illustrates how students sometimes need to conduct interactional work to accomplish a shared understanding of the terms of the knowledge gap being resolved before they can address it. As opposed to sequences in which K+ responses are contested, Extract 60 demonstrates a case in which the addressed recipient's understanding of the knowledge gap is treated as inappropriate by the requester (lines 12-15). It also illustrates, similar to Extract 57, how the addressed recipient may contest the terms of the knowledge gap provided by the requester (lines 16-21), namely that the word 'bruises' is an appropriate translation for 'mustelmia'. Note that knowing that 'bruises' is the correct word, a state of affairs which the teacher ratifies and for which Susanna later sanctions Sakari, does not yet resolve Sakari's original problem how to spell it so that he can add it in his essay. (In fact, this matter turned out to need further interaction in the group involving the dictionary which the teacher in this sequence brings to Sakari.)

4.6.6 Summary

This section has investigated practices around the interactional task of producing answers in response to FPP indications of lack of knowledge and determining their knowledgeability. These tasks are frequently accomplished in and through the SPP response as well as post-expansions to the adjacency pair. Besides stand-alone claims to K- epistemic status, students also initiate insert expansions which project the provision of a K+ response as problematic in one way or the other and mark the subsequent contributions as 'best guesses'.

In contrast to soliciting information from the teacher, participation in sequences that are aimed at resolving a knowledge gap in peer interaction is a more 'level playing field' in terms of orientations to the relative epistemic statuses of the participants. It also represents an activity that involves quite distinct practices from teacher-student interaction. This is visible in that a) K+ positioned responses may quite readily be contested when produced by another student, as opposed to when they are produced by the teacher, whose contributions may retrospectively 'prove right' some students' knowledge displays made in peer interaction; b) stand-alone minimal claims to K- epistemic status, such as head shakes and 'dunnos' are sufficient to terminate the responsibility of the addressed recipient to participate in the search; c) incompleteness of the pedagogic task which knowledge gaps are aspects of can be treated as an account for not providing a K+ response and for abandoning sequences for the resolution of such gaps; and d) recipients may offer their own task answers as 'best guesses' when a knowing answer is somehow troublesome. The final two points are examples for how access to some information is treated to be a possible result of one's engagement with the pedagogic task instead of being inde-

else in her or other speakers' turns that would indicate reprimanding for noisy behavior being done, as Susanna's turn at line 40 does not have the voice quality of a continuous 'shushing'. Susanna's turn most certainly is heard as sanctioning, but instead of noise it is concerned with Sakari's privileged epistemic status which is at issue here.

pendent from and prior to such engagements, in contrast to how the teacher is generally oriented to. These observations point to radical differences in the ways in which knowledge is managed in peer interaction and in whole-class situations involving the teacher.

5 KNOWLEDGE GAPS AND LEARNING

5.1 Introduction

Chapter 4 investigated the organisation of sequences through which students resolve knowledge gaps, finding that these are often done as student 'byplay' (Goffman, 1981, pp. 133–134) during whole-class talk or as side sequences (Jefferson, 1972) in the middle of some task activity. This chapter responds to research question (3) by examining how exactly the focal sequences in which lack of knowledge is addressed contribute towards 'learning'. As part of this task, an important concern is to consider what an 'orientation to learning' may be like, a construct that is often employed in studies operating in the CA-SLA framework but rarely specified in terms of the social actions and situations it may involve. In illustrating different orientations to learning, this chapter will draw on data extracts that have previously been analysed in chapter 4 from a structural-interactional point of view in an attempt to elucidate their organisational features and tasks. However, here some of those extracts are revisited with a somewhat broader analytical focus by considering their relation to pedagogic artefacts, such as tasks completed by the students, course texts and OHP slides. By this, the chapter aims at shedding light on the kinds of interactional work done through the focal practice for discerning learning objects in those artefacts.

As will be argued in this chapter, orientation to 'learning' involves an orientation to a change of epistemic status. The chapter will focus on describing two such (temporally opposite) orientations: 'learning' as something that is currently being pursued through a forward-looking orientation to becoming to know something that will enable some action to be completed, or 'learning' as invoking the knowledge states of some previous events in order to render new social actions meaningful and understandable. The first of these temporal orientations is investigated in section 5.2, which investigates how exactly do knowledge gaps that are formulated in interaction relate to these instructional artefacts and features. To give an example, when faced with a problem of how

to formulate a task answer, a student does not necessarily request that specific answer from a recipient, but perhaps a single word or an expression. Having received a 'knowing' answer from an addressed recipient, the requester will still likely need to find ways to use that knowledge for constructing the task answer. As will be seen in section 5.2, there is not always a one to one correspondence between what knowledge is being pursued through interactional sequences and what the solicited knowledge is eventually used for.

Secondly, sub-chapter 5.3 analyses situations in which students visibly make relevant their participation in previous interactions or experiences either in the classroom or outside school, that is, they orient to having learned something. These displays of changed knowledge states through participation in prior events may be invoked in interaction and used to inform and construct a variety of social actions, such as making visible and accounting for one's prior 'knowing' or 'not knowing', giving advice and the like. Besides making visible one's own change, students may also recipient-design their turns in such a way as to expect their recipient to also have learnt some previously established 'facts' in order to competently be able to respond.

These two viewpoints, which focus on observable behaviours, by no means are claimed to be able to provide a comprehensive treatment of 'learning' which may go on during and underwrite these sequences, something which is beyond the scope of this study. If we accept learning as an inherently longitudinal phenomenon involving some kind of change (cf. Sahlström, 2011), any individual experience or participation in a conversational sequence may well contribute towards its accomplishment on multiple timescales (see Lemke, 2002). Thus, even if a word-meaning related knowledge gap may be quickly resolved for classroom purposes over one adjacency pair, it does not mean 'learning' of the word ends there; new knowledge may quite plausibly get added to, refined, contested in and through a person's subsequent experiences.⁶⁷ The crucial question then, as Lemke (2000, p. 273) puts it, is how 'moments add up to lives'.

Nonetheless, the previous caveats regarding the multidimensional and complex nature of 'learning' should not be taken to mean that it does not feature in sequences addressing knowledge gaps. On the contrary, this chapter puts forward an argument that these sequences are very much students' practices for taking initiative and exercising agency in the classroom to accomplish task-relevant learning, however 'done and dusted' type of participation such sequences may appear to involve. In fact, the rapid resolution of knowledge gaps may be seen to be tailored to the time constraints inherent in institutionalised forms of education whereby learning objects tend to be pre-defined in the form of a curriculum and tasks – if one wishes to finish the given pedagogic task on time during a lesson, there quite simply is not that much time to engage

⁶⁷ For this, see Churchill's (2007) auto-diary study, spanning over a three-month period, on learning a Japanese word through multiple encounters with the word both in interaction with other speakers and in texts. Although belonging to a different line of inquiry, his study aptly demonstrates the point that speakers may orient to learning 'the same' object on several occasions, an observation that has significance for discerning concepts such as 'learning trajectory' from the participant's perspective.

in long and eloquent conversational sequences. Therefore, sequences addressing knowledge gaps can be seen as an organisation dedicated to transforming 'not knowing' into 'knowing' in and through interaction.

5.2 Learning as the local production of knowledge for task purposes

As was observed in chapter 4, lack of knowledge is frequently indicated to pursue knowledge concerning words and expressions, be the specific target of such sequences on word-spelling, the provision of an equivalent translation in English or Finnish, or the word's relation to some broader linguistic construct. This already suggests that there are different environments within lessons where 'words' are encountered, as well as purposes for and degrees to which they need to be understood. These are factors that students may attend to in managing the sequences and the resolution of knowledge gaps. Extracts 61-64, all of which have been analysed in chapter 4, illustrate how students may require word-related knowledge for various purposes.

In Extract 61, the phrase 'sum up', encountered by Aulikki and Liisa in teacher talk and task instructions, appears as problematic and needs to be understood in order to proceed with the task.

Sum up your essay!
 U woke me up! >:(
 Create message :)
 From: _____
 Text:

Extract 61. Sum up your essay (previously shown as Extract 3)

Liisa
 Aulikki
 Teacher

01 T **BEGINS HANDING OUT PAPER SLIPS TO STUDENTS**
 02 so you can write it down here. (.)
 03 you remember what you wrote about. (.)
 04 -> sum up your essay. (.) here?

05 Paavali I find just four (.) of those words
 {AULIKKI SHIFTS GAZE FROM OHP TO LIISA

06 Aulikki -> <mi↑kā> sum up your essay | T we:ll then it's- (.)
 <wh↑at> sum up your essay |

07 -> mitä se meinaa | you j's (.) mark the four
 what does it/she mean |

08 Liisa -> {SHRUGS, HANDS AT THE SIDE,
 PALMS UP

09 Aulikki GLANCES AT ANOTHER GROUP
 10 ((12 LINES OMITTED, DURING WHICH TEACHER GOES ROUND THE
 CLASS HANDING OUT THE NOTES AND INSTRUCTING THE TASK))

11 Liisa -> °mitää sinne pitää [kirjo-°
 °what do you have to write there-°
 {GAZE TO AULIKKI

12 T [okay
 {COMES TO GIRLS' DESK

13 Aulikki -> what's ↑summing means

14 T OKAY(.) now (0.6) then we-
 15 GIVES A & L PAPER SLIPS

16 Aulikki here is two
 17 HANDS A SLIP TO TEACHER

18 T yah (.) (thank you)
 19 TAKES THE SLIP

20 (2.0)

21 T ↑HEY (.) EVERYONE. (1.8)
 22 everyone (1.2)

23 -> Aulikki was asking a ↑very important question. (1.1)
 24 -> <what (.) does> (0.8) <summing up> mean. (0.6)
 25 -> when I ask you to sum up ↑what do I ask you to do.

26 Tuuli RAISES HAND
 27 T Tuuli
 28 Tuuli write the main points
 29 T yeah write the ↑main points, (.)
 30 uh the (.) essential the key the core.
 31 the- the- (.) ↑you have written a hundred words.
 32 now you have to condense it
 33 ((30 SECONDS REMOVED))

34 T -> have you can you think of a Finnish word to sum up
 35 Aulikki -> tiivistelmä
 36 T -> <tiivistelmä> is a good one.



As mentioned before on p. 90, and as can be seen in transcript image, the phrasal verb 'sum up' appears in the pedagogic material the teacher has prepared for an essay summary task, which the class are about to begin to work on and are able to see projected on the OHP. In addition to the material, the teacher has also used the target verb construction on a couple of occasions in her verbal instruction, most recently at line 4 but also before the beginning of the extract. In these instances of usage, the teacher has treated 'sum up' as a familiar word to the students, as its meaning was not explained, translated or otherwise treated as possibly unknown, apart from the teacher's having mentioned some time before the sequence that she wants the students to sum up their essay and 'not to write all of it' (not shown in the transcript). Even if this, together with the small size of the task sheet (post-it note) and the framing of the text type as an SMS (both in the task instruction and in the task sheet) indicates that the students' finished product is not expected to be a long piece of writing, under-

standing the genre of ‘summary’ on this occasion crucially hinges on understanding what ‘sum up’ means.

It is against this backdrop that we can see Aulikki’s indication of lack of knowledge, addressed first to her group member, Liisa (lines 6-7), and later on to the teacher (line 13) when she becomes available, not only as an action that opens up a way to transform K- epistemic status regarding an object into K+ but also – and perhaps more importantly – as an action that addresses a domain that has significance for competent participation in the subsequent activity. In situations in which a student’s understanding of what is expected next is jeopardised, different methods are available to signal it. They may, for example, explicitly claim non-comprehension, addressing their peers or the teacher (see e.g. Extract 24 for this particular task). What Aulikki’s ‘What is X type’ formulation of a knowledge gap – and any other such formulation – does is to publicly analyse and break down that non-comprehension. In doing so, it identifies a more specific problem behind a general inability to continue, namely one that relates to the meaning of an expression.

Note how Aulikki’s formulation of knowledge gap has changed between lines 6-7 and 13. On the first occasion, she queries the meaning of the task title in the post-it note (see transcript image), which the teacher also utters at line 4.⁶⁸ On the second go, Aulikki has further narrowed down the degree of the knowledge gap from the complete task title to an individual word (‘summing’) in it. What the two requests have in common is the treatment of some language item, either a phrase or a word, as unknown. The implication of Aulikki’s analysis of what constitutes the knowledge gap is that as long as the operation that needs to be performed to the previously written essay (glossed by the teacher as ‘summing up’) were known, the task title would be clear enough for her to proceed. However, as was mentioned before on p. 90, the teacher’s orientation to resolving the matter by soliciting a display of understanding (Koole, 2010) from the whole class, beginning at line 21, treats the non-understanding of ‘summing (up)’ as possibly relevant to the whole cohort – albeit not first and foremost as a word meaning problem. Note how when tackling the knowledge gap, the teacher once more transforms Aulikki’s formulation of the gap into non-comprehension of the *task title* by explaining and soliciting the students’ understanding of what it means at lines 23-25. It is only after an understanding of what ‘summing up’ means for this particular task activity on this occasion has been scaffolded through multiple paraphrasing of Tuuli’s response (lines 28-32), that the teacher turns the attention to a more decontextualized word meaning.

⁶⁸ In Finnish, Aulikki’s second TCU at line 7 (‘mitä se meinaa?’) can potentially be heard not only as ‘what does it [sum up your essay] mean?’ but also as ‘what does she [the teacher] mean?’. To some extent, both hearings could acceptably be responded to in the same way, which complicates distinguishing how they are interpreted. However, Aulikki appears to treat Liisa’s claim of insufficient knowledge (line 8) – which she already begins during Aulikki’s second TCU – as a sufficient response to the second TCU by not pursuing another response. The lack of a pursuit thus signals that Aulikki orients to both her ‘questions’ formulated at lines 6-7 as being concerned with ‘the same’ knowledge gap, i.e. what the expression means.

In the course of asking whether the students have been doing similar activities in their Finnish language (L1) lessons, the teacher asks for a suitable translation for 'sum up', which Aulikki subsequently provides and which receives the teacher's emphatically produced ratification (line 36).

How does 'learning' figure in this extract? Through her participation in these sequences, Aulikki visibly initiates and conducts interactional work that finds its motivation in bringing about a change in epistemic status. She positions herself as unknowing and pursues knowledge that will enable her to successfully complete a task, even if the exact formulation of that knowledge is constantly re-negotiated in the course of these interactions. Once sufficient knowledge is produced (by means of whole-class interaction), Aulikki indexes her knowledge of 'sum up' by treating it as a known expression by claiming and displaying competence in its translation at line 35. What is more, she also competently produces a piece of writing that is appropriate for the genre of an (SMS) 'summary' of her previously written essay on the (hard) life of women in the Tudor times (see Figure 3). Both of these occasions of language use can be seen as local evidence of having learnt what 'summing up' means in the sense of being able to act in situations where it is employed and knowing a corresponding expression in Finnish.

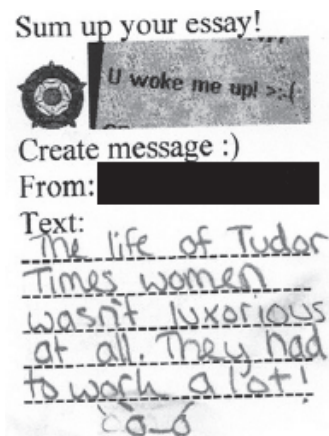


Figure 3. Aulikki's essay summary

Sometimes problematic words or expressions in a task can be overcome even if they never receive an exact definition or a translation such as in the previous extract. As was argued in chapter 4, a fundamental concern for students in content-focused (CLIL) classrooms is represented by 'correct answers'. This allows the students to sometimes make do with 'fuzzy' definitions for foreign language items. As long as they suffice to accomplish a task (and produce these 'correct answers'), it may be that a precise answer to an original formulation of a language-related knowledge gap is never obtained in interaction. This, again, is one way in which students in a classroom do not necessarily engage in learning practices similar to adult learners in everyday conversation, which have

In 1755 England embarked upon the Seven Years War with France . England was victorious just about everywhere, gaining territory in Canada, Florida, Grenada, Senegal, and in America east of the Mississippi. Overseas, the East India Company had established trading posts at Calcutta and Madras. The subcontinent was open to a monopoly by the East India Company.

Figure 4. Part of the course text describing developments under George II.

Thus, following the identification of the specific task item that has occasioned the knowledge gap of 'occupy', the students' talk at lines 11-14 draws on the stretch of text presented above in order to find what it means 'for all practical purposes' (Garfinkel, 1967) of this particular task. At lines 11 and 13, Paavali announces the countries that he claims to have already put down as his answer, followed by Jouni's reciprocal action of announcing his own answer ('all of these which were underlined'). Looking at the course text in Figure 4, we can see that the 'underlined' refer to a list of territories which England is described to have 'gained' under George II's rule. As the sequence ends with Paavali's acceptance token at line 16, 'occupy', the original formulation of the knowledge gap has not been given the kind of dictionary definition that was requested at the beginning of the sequence. Yet both parties, including the requester, Paavali, appear to 'know' enough to have been able to competently complete the task. All this begs the question what kind of interpretative resources and practical understandings are required to be able to overcome the apparent lack of any kind of definition for 'occupy'.

Lacking a precise meaning for the word 'occupy' (but assuming knowledge of other words), the question "What countries did England occupy during this [George II's] time?" is rendered as a question asking for a list of countries to which England was *somehow* related. Such a list is indeed given in the text shown as Figure 4, but as we can see, there are countries (and regions) with quite diverse relations to England under George II. Besides the taken territories in Canada, Florida, Grenada, Senegal and in America, one country is described as a war opponent (France), and another one (India, or 'the subcontinent') as an area with which England was trading. Yet, Paavali and Jouni have managed to infer that the task targets those countries that are described as 'gained territories', a state of affairs they not only claim at lines 11-14 but also include in their written answers (not shown here). Being able to discern between the different kinds of political relations mentioned thus requires knowledge that the meaning of 'occupy', at the very least, is somehow different from 'fighting a war', or 'trading with'. In this respect, it appears that both students can manage the word 'occupy' as it features in task work, even if interactionally the declared knowledge gap never received a knowledgeable response.

Why does Paavali then ask the meaning of 'occupy' if he can manage the task without knowing it precisely? Here we can only venture our best guess, but it may be that the original request is motivated by this very ambiguity that

remains in the task formulation when the precise meaning of a key word is unknown. Note that Paavali's original request (line 2) specifically targets its 'meaning', and does not treat as problematic the whole question or *what* he needs to do next. In this sense, the request may be seen as a way to double check that he has picked the right countries (and that 'war with France' is not included in the meaning of 'occupy'). Once this is confirmed by Jouni's display of his country-wise identical answer, the sequence ends. The way the meaning quest is then quickly abandoned illustrates how 'language' concerns may in certain contexts be ancillary to task-accomplishment: as long as the practical implications of certain language forms, i.e. what they 'refer to', are clear to the participants, task work may go on. It may be one aspect in which participant orientations in CLIL contexts differ from those in formal language teaching (such as EFL) education.

Besides helping to understand a task instruction or formulation, lexical knowledge is also important in constructing written task answers. Sometimes the meaning of a word is queried in order to confirm whether it can be used to express a particular 'idea', as illustrated by the following two data extracts. In both sequences, which take place a couple of minutes apart from each other, Susanna requests the meaning of a word in the course of writing an essay titled 'If I was a pupil in a Tudor school'. More specifically, the knowledge gaps relate to writing the two sentences shown in Figure 5.

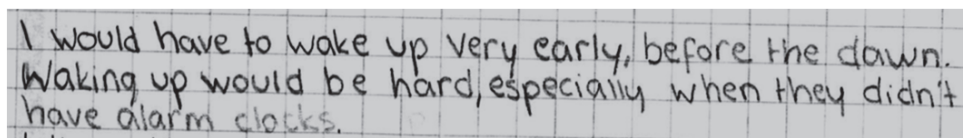


Figure 5. Susanna's essay

In the first sequence (shown previously as Extract 15), Susanna requests the confirmation of a candidate Finnish translation that she proffers for the word 'sunset'. Based on the page region of her notebook that she writes on, Susanna appears to have just completed the main clause of the first sentence as she interrupts her writing and delivers the request at line 2. Although the confirmed translation does not feature in the completed essay, it appears that the word 'dawn', which Inka provides in her hedged answer in Extract 63 (p. 214) finds its way to Susanna's essay.

At line 1, Susanna interrupts her writing and shifts her orientation to Inka, whom she initially addresses a 'What is X' formatted information request to query the meaning of 'sunset' (line 2), which she nevertheless increments with a candidate translation ('illalla', 'in the evening') at line 4, thereby accomplishing a request for the confirmation of the translation. As noted in an earlier analysis of the extract (see p. 116), the confirmation which Inka provides over lines 5-8 is in many ways hedged, produced as a 'best guess'. Besides the micro gesture of slowly rolling her eyes to the top left corner as if to think for an answer, Inka utters the word pair 'dawn and ('ja') sunset', which the class have encountered

Extract 63. Sunset (shown as Extract 15)

Sakari Susanna Inka



01 Susanna -> SHIFTS GAZE FROM TEXT TO INKA
 02 [mikä o sunset (.)
 what's a sunset
 {INKA TURNS HEAD AND GAZE TOWARDS SUSANNA



03 (Sakari [kaksytkahaksa)
 twenty-eight
 04 Susanna onk se niinku illalla (.) ni sunset vai,
 is it like in the evening (.) that sunset or,
 {GAZE DOWN TO DESK IN FRONT OF INKA
 05 (2.0) / INKA ROLLS EYES SLOWLY FROM ONE SIDE TO OTHER
 06 Inka -> dawn ja sunset
 dawn and sunset
 07 (1.4) / AT 1.0 SECS INKA SHIFTS GAZE TO DESK
 08 -> se on kai
 it is I guess
 09 Susanna SHIFTS GAZE TO OWN TASK FOR C. 3 SECS
 10 -> STARES INTO THE MIDDLE DISTANCE FOR C. 5 SECS
 11 -> BEGINS TO WRITE

in the course text (see Figure 6 below) and which had previously been used in class by other students when reporting their pre-writing tasks. By making 'dawn and sunset' interactionally relevant at line 6 before committing to a specific (invited) knowledge display, Inka thus invokes these previous language-use situations and employs them as a publicly displayed 'reasoning tool'. Note how such a reasoning tool is not the exact reproduction of the coined English expression 'from dawn till sunset' in the course text but a disjunctive pair of antonyms (even if 'ja' ['and'] tends to work as an additive particle).

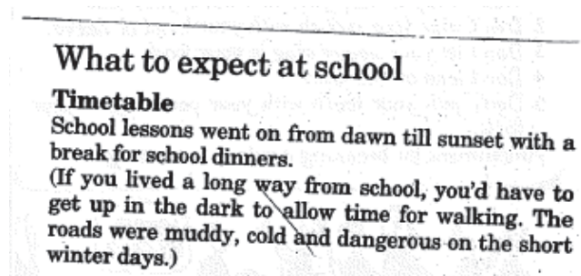


Figure 6. Course text on Tudor schools

At lines 9-11, Susanna withdraws from turn-by-turn talk and shifts her orientation back to her essay, the writing of which she seems to resume at line 11 some eight seconds after the end of Inka's previous turn. There are a few reasons to suggest that the exact sentence she continues at line 11 is "I would have to wake up very early, before the dawn" (see Figure 5). First, shortly before the extract, Susanna displayed to Inka her sentence just-before the target sentence (not shown in this extract), and as she eventually re-engages talk after Extract 63 (shown in the following extract (64)), she queries matters related to the sentence beginning with 'Waking up'. This suggests she moves on in her task between the interactions in the two extracts. Second, even though Susanna asks the meaning of 'sunset' instead of that of 'dawn', it is the latter which she appears to add in her text after the search sequence. This observation is based on what part of the text (i.e. the right-hand side of the page in her notebook) Susanna is visibly working on when she resumes writing at line 11 of Extract 63. As such, it suggests she had completed the main clause "I would have to wake up very early" at the point when requesting the meaning of 'sunset'.

The observation that Susanna's confirmation request for the meaning of 'sunset' targets a suitable completion to the first sentence shown in Figure 5 presents interesting avenues regarding the relationship between knowledge gaps that interactional sequences are used to identify and the 'uptake' from those sequences. As regards Susanna's 'intentions' for possible completions to her sentence prior to the sequence, we may only hazard a guess. It may be that she has a specific candidate completion including the word sunset 'in her mind', or it may well be that such an idea has not occurred to her. However, it is safe to say that she is presented with a situation in which she needs some kind of a time-related dependent clause in order to finish her sentence.⁶⁹ It is curious that even if Susanna asks for 'sunset' from a fairly 'knowing' K- position, she never uses the word in her writing. Instead, she takes up the word 'dawn', which arguably fits quite a bit better to complete a sentence that tells about getting up 'very early' in a Tudor school. Another possibility is that 'sunset' was planned to feature in the sentence immediately *after* "I would have to wake up very early, before the dawn", even though Susanna requests it while the first sentence is still underway. As it happened, following what looks as her completion of the

⁶⁹ Speakers' intentions, thoughts, mental states and internal motivations, as well as the degree to which they may be visible in talk, are topics towards which CA-oriented research generally approaches either agnostically or even atheistically. The position assumed here is one of agnosticism because of precaution: although individual mental activity most certainly occurs during interaction, the analyst's access to it as well as its use in explaining interactional events is at the very least problematic (Markee & Seo, 2009, p. 52). Such a precautionary principle does not, however, mean that interactants themselves would not orient to each other's mental states, as is clear from the sequences described in this thesis and the history of speakers' orientations to knowledge in CA research (see also section 2.2). Therefore, there is no reason barring speculation of 'mental states' in interactional research, as long as the status of such evidence as conjectural is recognised. Thus, a more robust basis for a CA-based analysis of the 'mind' in talk-in-interaction is found in the practical and visible orientations of speakers, which are in any case the evidence base that is visible to co-conversants.

first sentence, she began writing something on the line below, but erased it as the students began to address another knowledge gap (not shown in the extract).⁷⁰ This latter option is possible but on the other hand does not explain why Susanna takes her time between receiving Inka's confirmation and completing the first sentence (lines 10-11). Her staring into the middle distance can be seen as an embodied display of cognition (Mori & Hasegawa, 2009), in this case of figuring out how to complete that sentence.


After approximately one and a half minutes (during which the participants address another knowledge gap presented by Sakari), Susanna resumes her independent writing activity. Again, she appears to write down at least a part of if not the complete main clause ('Waking up would be hard'), before she initiates the following sequence with Inka to inquire after the English translation of the word 'ainakin' (~'at least') which she presents as a suggestion to finish up the second sentence.

Extract 64. At least (shown partly in Extract 20)


STUDENTS ARE WRITING IN THEIR TASK SHEETS

01 Susanna LIFTS GAZE FROM DESK TO INKA
 02 -> mikä o ainakin
 what's 'at least'
 {TAPS INKA'S KNEE
 (1.5)
 03 -> (1.5)
 04 Susanna -> KNOCKS TWICE ON INKA'S KNEE

Sakari Susanna Inka



05 Inka -> SHRUGS AND PULLS CORNERS OF MOUTH DOWN, GAZE DOWN
 06 (1.0)
 07 ° (- -) °
 08 Susanna -> MAKES A THROATY SOUND
 09 (0.8)
 10 Inka TURNS OVER AND MAKES A LOUDER THROATY SOUND
 11 Susanna *fjoo mää tiiänf*
 fyeah I knowf
 12 -> {BOTH SMILE AND LOOK AT SUSANNA'S NOTEBOOK
 (mutta) (.) nii (.) mikä o niinku-
 but (.) yeah (.) what's like-
 {MUTUAL GAZE ESTABLISHED



13 Inka SHIFTS GAZE BACK TO S'S NOTEBOOK
 14 oota,
 wait,
 15 (1.2)

⁷⁰ It appears that Susanna wrote something which she later on erased and replaced with the word 'Waking' at the beginning of the second sentence. This observation is based on the part of the notebook page Susanna appears to be working following the sequence on 'sunset', as well as the marks left on the page from the use of an eraser.

- 16 Susanna -> °ainaki niinku ei ole edes herätyskelloja°
 °at least like they don't even have alarm clocks°
 {SMILES}
- 17 Inka -> °öö (0.9) especially°
 18 (0.8)
- 19 Susanna -> °hjoo°
 °hhyeah°

At lines 1-2, Susanna interrupts her writing to request Inka to provide an English translation for the word 'ainakin' ('at least'), using a turn design that relies on the mobilization of the ongoing writing activity as a frame of reference to accomplish this by simply querying what the Finnish language word 'is', without a need to indicate that its English equivalent is being searched for. As noted on p. 124, Inka stops her own writing and only 'really' begins to address the knowledge gap at line 10. This is some seconds after her reciprocity has been pursued (line 4) and she has made an initial claim of insufficient knowledge (line 5), which Susanna, however, has sanctioned (line 8).

As Inka eventually turns towards Susanna, both speakers sustain mutual focus on the latter's notebook at line 11 (see transcript image). This coordination of attention is done to contextualise and elaborate the knowledge gap by making Susanna's written sentence-in-progress available to Inka. Having access to the notebook allows the recipient to 'see' what the requested word translation is trying to communicate in the text, which in this case appears to be the completion of a sentence beginning with 'Waking up would be hard'. Following this display of how the earlier formulation of a knowledge gap relates to the 'bigger picture' of the writing product, Susanna returns at line 12 to the action she is concerned with, namely requesting Inka's help. This is done with a turn-initial particle chain 'mutta nii' (~'but so'), which reminds Inka of the connection between the just-conducted display of the notebook and Susanna's previous action at line 2 and the responsibility that these actions cast on Inka to respond to that request.⁷¹ The particle chain is followed by what appears as an attempt to reformulate the knowledge gap, a turn which Susanna however cuts off.

Now that the notebook has been made relevant for the sequence, Inka begins to examine Susanna's sentence-in-progress, and puts the progression of the activity on hold while she conducts the examination at lines 13-14. By doing so, she treats the information in the notebook as a factor which will affect her eventual answer and the epistemic positioning to which Inka will commit. During Inka's examination of the notebook, Susanna assembles yet another piece of contextual information for her request at line 16. She provides a syntactically and pragmatically appropriate continuation of line 12 ('ainakin') and continues by elaborating the sentence ending that she plans to convey, namely that the Tudor time students didn't 'have alarm clocks'. This final piece of the puzzle allows Inka to come up with a word ('especially') which can be deployed to

⁷¹ See Sorjonen (1989) on how turn-initial 'mutta' ('but') without other particles can be used to accomplishing topical shifts by (re)introducing an earlier topic into conversation.

connect the already written main clause with the side clause Susanna has just provided. Notice how 'especially' is semantically different from the connector 'ainakin' ('at least'), which Susanna originally requests and still uses at line 16 to construct her sentence ending in Finnish. Nevertheless, following its provision, Susanna accepts 'especially' at line 19, and the word finds its way into the written sentence which Susanna formulates after the sequence.

Taken together, extracts 63 and 64 illustrate how intricate interactional work may underlie the production of seemingly simple task answers, in this case two sentences in a student's essay. However, as demonstrated by these extracts, as well as Extract 62, the relationship between the knowledge gap that is interactionally identified and on the other hand the 'individual project' for which the sequence-initiator needs the invited knowledge in order to be able to 'go on' with the task work is indeed a complex one. As knowledge gaps are aspects of tasks or the instruction, the identification of such a gap by means of an interactional turn may sometimes only represent an incomplete or inaccurate account of it, and thus be an incomplete vehicle for getting a specific action done. This is the case when students draw on the very artefacts or other resources which have occasioned the gap. In Extract 62, the students assemble together the course text, the specific question where 'occupy' is found, as well as their task answers to come to a conclusion 'for all practical purposes' (Garfinkel, 1967) of what the word means on that particular occasion by reference to the particular question in their task sheet. Similarly, in Extract 64, Susanna's sentence-in-progress in the notebook, together with a display of what she has 'in mind', are both mobilised to elaborate – and partly transform – the original verbal request for the meaning of the word. This can be seen as a way of 'putting the recipient in your shoes' by making the context of the knowledge gap available to them.

The possible products of learning that these sequences involve show sensitivity to the differing purposes that the solicited word meanings are needed. They range from understanding English words in tasks (Extract 61) to knowing the English-language equivalent of Finnish words, or vice versa, in order to be able to formulate task answers (63 and 64). Furthermore, such knowledge may also be treated as more or less consequential for task-accomplishment. In Extract 61, 'sum up' was oriented to as crucial to understanding what needs to be done next, as evidenced by Aulikki's conduct following the first K- claim whereby she followed and waited for the teacher to arrive and provide its meaning. On the other hand, in Extract 62, the students could manage quite perfectly without working out a specific, dictionary-like meaning for 'occupy'. What connects these extracts is thus that the need for knowledge of a word's global meaning and its significance for adequately understanding, or being able to conduct, some next action overrides a need for a specific meaning of the (requested) word. It is this property that makes 'especially' a meaningful and acceptable answer to a request asking for (the translation of) 'ainakin' ('at least'). This property also underwrites what may be seen as products of learning in these instances, so that Susanna's written sentences (Figure 5) may perhaps

more aptly be seen as evidence of learning to complete sentences rather than learning specific, decontextualized foreign language equivalents for words.

What can be said about an orientation to and temporalities of 'learning' regarding the knowledge objects which in previous extracts have been requested, provided (sometimes as transformed) and accepted as valid? Most CA-SLA research seems to converge on making a distinction between 'doing learning', i.e. orienting towards learning, and 'learning' as a longitudinally occurring process which manifests itself as change over time. As extracts 61, 63 and 64 quite clearly show, making a knowledge gap into an interactionally relevant phenomenon involves *an orientation to becoming to know something*. These sequences represent a vehicle for bringing such an epistemic change about: all examined sequences begin with a request made from a K- epistemic position, which over the sequence is turned into a display of K+ status, as indexed by acceptance and ratification of the provided knowledge and its use for accomplishing some task (for which it is needed). In Extract 61, Aulikki quite capably accomplishes a summary once the meaning of 'sum up' has been explained (besides providing a Finnish translation for it), and Susanna equally proficiently uses the words 'sunset' and 'especially' in the sentences she writes in her notebook. These written and verbal usages constitute evidence for learning that is of more complex nature than the term 'subsequent usage' (cf. Savijärvi, 2011, p. 17) conveys, albeit such evidence within the boundaries of a task is not necessarily 'longitudinal' in terms of the timescales usually associated with the term. This limitation means that even if the provided knowledge objects had been 'learnt' on these occasions for these particular tasks, there is no guarantee that the students would have been able to mobilise their knowledge in some other task context at a later point in time.⁷² Although this represents a seemingly sensible stance towards what counts as robust enough evidence of learning, it is not without problems. First, quite evidently something that can be 'learnt' may also be 'unlearnt', or 'forgotten', which represents a course of events a longitudinal research orientation stressing stability of change would not necessarily recognise as 'learning' in the first place. Second, comparing interactions or an individual's participation at different points in time is premised on the existence of comparable cases (see section 2.3, also Wagner [2013]), be they a certain action or a word. However, ensuring that both the speakers involved and the interactional context stay unchanged is not necessarily possible.

⁷² Here, CA-SLA and SLA that relies on a pre-test/post-test research design differ in terms of the logic that is used for documenting learning, which may largely be due to different kinds of data employed. Whereas the former approaches this from the point of view of positive evidence for language learning - in the sense that evidence consists of occurrences of the learning object in longitudinal, naturally-occurring interactions that in some studies follow a key event in which the object may be seen as having been 'learned' - traditional SLA approach includes the use of a post-test research design to collect negative evidence of 'learning' in the form of lack of correct use. Even if the concept of conditional relevance in CA (Schegloff, 1968) affords an analytical consideration of certain types of turns or actions as being relevantly or officially 'absent' (e.g. an answer after a question), this hardly extends to the possible non-occurrence of previously 'learnt' words and grammatical constructions, learning objects which SLA is most often concerned with.

Drawing on a close examination of sequences addressing knowledge gaps and the pedagogic artefacts which the students in those sequences make relevant for the resolving of the said gaps, this section has examined the relationship of students' interactional work on knowledge gaps and learning. 'Learning' is in most theoretical accounts a temporal concept, and the extracts that have been examined in this section entail a forward-looking orientation to resolving a knowledge gap. This orientation is intimately related to the production of learning for the purposes of task-accomplishment. However, the future is not the only temporal direction that students orient to in sequences that address knowledge gaps. They can also make relevant actions and events that have happened in the past for the construction of actions here-and-now. These will be investigated in the next section.

5.3 Learning as orientation to previously held epistemic positions

The previous section argued that sequences beginning with an indication of lack of knowledge are learning-relevant in the sense that they provide a systematic interactional practice for bringing about a change of epistemic status. In addition to this forward-looking orientation to knowledge construction, students sometimes design their turns in a way that makes relevant *previously occurred* interactions beyond the immediate sequential context and the epistemic stances taken therein. Such an explicit orientation to prior events can be seen as one way in which students engage in activities that they treat as 'learning' (cf. Sahlström, 2011) by attending to similarities or differences between their and their co-conversants' conduct at two points in time. In doing so, students may remind each other of their previous epistemic positions, solicit help from speakers who have previously been deemed 'knowledgeable', design their turns to expect certain kinds of knowledge from the recipient, display that they have acquired some knowledge as a result of some event and so on. All these different kinds of invocations of previous interactional events highlight speakers' interactional and epistemic histories and are their ways of building interactional projects – courses of action which are developed over a longer time span (cf. Schegloff, 2007, p. 244) – of knowledge construction.

To illustrate such orientations to previous events, the following three extracts show how a display and a ratification of knowledge may be attended to later on in the same lesson. In the first extract below, the teacher is revisiting a quiz activity about the Stuarts, an activity that was left unfinished in the previous lesson. The teacher is going through questions which she was planning to ask in that lesson but for which she did not have enough time, showing them and accompanying images on the overhead projector. One of the previous day's quiz questions would have asked what the plague (of 1665) was, which in the extract below, the teacher now asks from the students and receives knowledge displays from Aulikki and Mauri.

lic production of knowledge (cf. Macbeth, 2004). At lines 33-34, the teacher finally moves on to provide an answer to her original question about what the plague really 'is' and defines it as an 'illness' or a 'disease', thereby treating these definitions as missing in the previous answers by the two students, yet something which her original question has nevertheless made relevant. Note how the beginning of line 33 ('plague is...') is grammatically fitted to the teacher's question at line 6, 'what is a plague'. This format-tying presents the items 'illness' and 'disease' as model answers to that question and is followed at lines 35-37 by a partial validation of Mauri's prior account as 'the most likely reason' to have caused the Black Death. After this, the teacher continues the instruction by introducing *Ring a ring o' roses*, a nursery rhyme which has sometimes been alleged to have originally described the spread of the plague (that sequence is not shown here).

Apart from showing an occurrence in which a student provides extra-curricular knowledge in an answer to a teacher's question, Extract 65 illustrates a type of turn-taking organisation which is routinely employed in many kinds of classrooms, not only in content-based language teaching. This can be characterised as an extended IRE, or an IRIRE sequence; the teacher asks a question, nominating a student, whose answer she deems to require more elaboration which she invites by reformulating the original question and receives a second student's knowledge display, which she subsequently evaluates and, as we saw, partly validates. This kind of 'chaining' serves the production of public knowledge and understanding, which Macbeth (2004, p. 716) has termed as 'the standing task and achievement of classroom instruction'.

What is important to recognise that once knowledge is produced in the classroom, students have the possibility – and they are sometimes even expected – to acquire and use that knowledge to answer tasks at some later point in time. Sometimes the degree and the accuracy to which knowledge can be retrospectively reproduced constitute the benchmarks for 'learning' in content-focused classroom contexts. Consider the next two extracts from later on in the same lesson (both of which show self-standing resolutions of knowledge gaps analysed in chapter 4). In these sequences students invoke in various ways Mauri's knowledge display (Extract 65) while working individually on a task sheet that has a question on the causes of the plague of 1665. The question is as follows: "What caused the plague (suom. rutto)?", in which the part in brackets gives a Finnish translation for 'the plague'. Curiously enough, the course text that the students have at their disposal provides very little information on the topic, so that the only time the plague is mentioned in the text is in a side clause in connection to the Fire of London of 1666, during which the Great Plague is said to have 'lingered on' in 'dirty and overcrowded' and 'unhealthy conditions'.

The first of the sequences (Extract 66), previously shown in section 4.5.3, that draws on Mauri's knowledgeable response takes place some twenty minutes after Extract 65 and involves Matti asking Paavali whether the rats that caused the plague came from Indonesia.

Extract 66. Indonesia (shown previously as Extract 37)

```

01 Matti      STOPS WRITING AND SHIFTS GAZE TO PAAVALI
02           -> tuliko ne      Indoneesiasta
                did they come from Indonesia
03           (0.7)
04 Paavali -> <Intiasta>
                <from India>
                {LIFTS GAZE TO MATTI
05           (0.8)
06 Matti     -> Mauri puhu    jostai Indoneesiasta
                Mauri talked about some Indonesia
07 Paavali   Intiasta
                about India
08 Matti     CONTINUES WRITING

```

As noted earlier in section 4.5.3, at line 2 Matti re-engages turn-by-turn talk by using Finnish polar interrogative syntax to request confirmation of the origin of the plague-causing rats, referring to them with the pronoun ‘ne’ (‘they’). Paavali’s answer at line 4 disagrees with the candidate country and, without mitigation, states another country, India, as the correct origin country. Matti’s account for having suggested Indonesia makes an explicit reference to Mauri’s participation in the teaching exchange shown in Extract 65, as he claims that ‘some Indonesia’ was what Mauri ‘talked about’. This action in effect contests the answer provided by Paavali, who at line 7 responds to this by rectifying the origin Matti claims at line 6 (‘some Indonesia’), and does it assertively enough to achieve subsequent sequence-closure and the incorporation of ‘India’ in Matti’s task answer (see Figure 7).

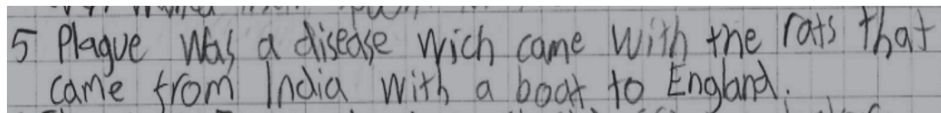


Figure 7. Matti's task answer to question “What caused the plague (suom. rutto)?”

In Extract 66, the two students’ orientation to the events of Extract 65 is all-embracing both when it comes to formulating social actions and in ascribing (see e.g. Levinson, 2012) these actions to verbal conduct. The events of Extract 65 are not only made evident in the explicit mentioning of Mauri’s ‘talking’, which Matti leverages at line 6 as proof for his candidate answer Indonesia. Even the recognition of Matti’s request at line 2 as doing what it does is contingent on having followed and thereby being able to remember the events of Extract 65. This is because the request treats the addressed recipient as aware that ‘they’ refer to rats that are connected to the plague in this task context, a reference that Paavali treats as unproblematic in his response. In short, the addressed recipient, Paavali, is taken to be someone who was there, and therefore knows and is expected to remember what was said earlier in whole-class interaction. And as Paavali makes clear, he indeed ‘remembers’, even if the content

of his recollection is contested by Matti. Through these orientations, both students draw on a shared history and treat it as relevant and significant for task-accomplishment here-and-now, namely by soliciting a 'reminder' of what was said.

In a similar manner, the role played by 'rats' in the outbreak of the plague is treated as part of the shared epistemic history in another group some ten minutes after Mauri's original knowledge display. This can be seen in Extract 67, which displays the latter part of a sequence that was analysed for recipient recruitment practices (Extract 22) and shows how Esteri, while doing the same task as Matti in the prior extract, checks the origin country of the rats first with Tuuli and then with Sylvi.

Extract 67. The origin of rats (beginning of sequence shown in Extract 22)

```

08 Esteri  -> .tsk uh where were the: (.)
                                     {TUULI'S GAZE TO ESTERI
09          uhh rats brought from to °Europe°
10 Tuuli   SHRUGS HER SHOULDERS
11          (1.7)
12 Esteri  -> SHIFTS GAZE TO SYLVI
13          where were the (.) the: umm (0.6)
                                     {ALMA'S GAZE TO ESTERI
14          rats that caused the (.) umm <plague> (0.7)
                                     {SYLVI'S GAZE TO ESTERI
15          where were they brought °from°
16          (0.9)
17 Sylvi   -> India
18 Esteri  (°India°)
19          BEGINS WRITING
20 Tuuli   -> onko,
            is it,
21          (0.8)
22 Sylvi   -> †ye::s?
23 Tuuli   fhhhehehef

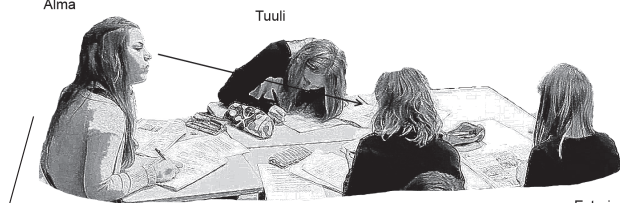
```

As noted before on p. 128, Esteri's request that begins at line 13 is the third occasion she initiates such a sequence, having first found Sylvi unavailable for interaction and subsequently Tuuli to have claimed K- status regarding the origin country (line 10). Notice how Esteri's both request formulations (lines 8-9 and 13-15) treat the role of 'rats' in the outbreak of the plague as a known item (and also assume such recognition from the recipient), signalled by the use of the definite article 'the'. Instead of requesting what may have caused the plague, the requests query a reminder of what Mauri had claimed as the cause. However, her request at lines 13-15 is a modified version of the request presented to Tuuli (lines 8-9) insofar as it repairs the degree of knowledgeability of 'rats' that it assumes the recipient to possess. Instead of referring to Mauri's claimed cause simply with 'rats', she now makes this explicit with the help of a noun phrase ('rats that caused the plague'). Given that the modified request occurs in a sequential location that follows a claim of insufficient knowledge, it may be seen as an attempt to secure maximal recognisability of the referent by means of 'overtelling' (cf. Schegloff, 1979).

Sylvi responds by providing the country which Mauri earlier identified as the origin of the rats ('India') at line 17, an answer that Esteri subsequently accepts and gets back to her writing. As Esteri has already disengaged from the sequence, Tuuli, who has been following the sequence, appears to request confirmation for and thereby contest the answer at line 20. Sylvi's response to this at line 22 is interesting, as it appears to downgrade her previously assumed (strong) knowledge assertion. Although she produces what generally functions as a confirmation token ('yes'), its elongation and noticeably rising intonation contour convey a sense of resignation from the previously claimed certainty to know the answer, as indexed by a 'no-trouble' response (Fox & Thompson, 2010) as opposed to a hedged response. Seen this way, Tuuli's subsequent laughter attends to the very mismatch between the claim to knowledge at line 17 and the later confession of uncertainty, and the consequences what this may have for Esteri's task-accomplishment.⁷³


Besides designing their turns in a way that attends to what has happened before, students can orient to previous interactions and their epistemic implications by addressing knowledge gaps to individuals whom they may have a reason to expect to be able to resolve the gap on the basis of some prior events. For this, notice how Alma, too, attended to the conversation between Esteri and Sylvi in Extract 67 by shifting her gaze to the two girls at line 13 before returning to her task work approximately at line 15. Besides visually orienting to what is going on around her, these students' talk is audible and thereby an available resource to be picked up later. As Alma later arrives in the task sheet item that addresses the plague some six minutes after Extract 67, she initiates a sequence to check whether an additional factor, dirty water, contributed to the plague outbreak.

Extract 68. Dirty water



01 Alma STOPS WRITING AND SHIFTS GAZE TO SYLVI
 02 -> eikös pleigi ↑ollu myös caused by se (.) dirty water
 wasn't the plague also caused by that (.) dirty water
 (1.1)

03
 04 Tuuli STRAIGHTENS HER POSTURE
 {ALMA SHIFTS GAZE TO TUULI}



05 Tuuli -> öö joo. (.) kai.
 err yeah. (.) I guess.
 -> {GLANCES AT ALMA AND SYLVI
 -> {ALMA BEGINS TO WRITE

06 tai sieltä,
 or from the(re),
 {GAZE TO TEXT, SHAKES HER HAND

⁷³ Besides the verbal aspects of Sylvi's turn, Tuuli has access to her facial expressions which may be used, in addition to the striking prosody, to construct a negation of the conventional meaning of the token 'yes'. Unfortunately, Sylvi's face is not captured on the video, which makes these interpretative resources unavailable to the analyst.

07 kadulla oli sitä °(ollu)°
 it ((dirty water)) had °(been)° in the street

At lines 1-2, Alma stops writing and requests the confirmation of whether or not ‘dirty water’ contributed to the plague epidemic. This turn is directed to Sylvi, the ‘knower’ in Extract 67, towards whom Alma shifts her gaze. However, as Sylvi maintains gaze at her task, indicating no attempt to provide a response, after a 1.1 second silence Tuuli joins in the activity by providing a qualified, yet K+ positioned response which partly agrees with Alma’s suggestion (lines 4-7). Notice how Tuuli’s response orients to these ambiguities or even troubles in establishing reciprocity for Alma’s request. Following Alma’s gaze shift to her during line 4, Tuuli glances at Sylvi (line 5) while beginning to formulate her response, an action that allows her to monitor her participation in the sequence.

Besides Alma’s selection of a ‘possible knower’ (Sylvi), Mauri’s prior explanation in whole-class talk is invoked by Alma’s request design, which is through and through bilingual as regards its lexis (‘pleigi’, see also ‘daggeri’ in Extract 12) and syntax. It not only indexes a fairly ‘knowing’ K- stance towards the candidate cause of plague she identifies, and conveys a predisposition towards its confirmation by means of the polar morphosyntax (see also section 4.5.3). Furthermore, the accompanying clitic –s that is suffixed to the verb also constructs the queried knowledge as something to which the requester claims to have (had) access (Raevaara, 2004, see also VISK §837), rendering the activity a character of doing joint remembering. Note how Alma’s request also presents ‘dirty water’ as not the only cause, but rather as an additional factor leading to the plague, by means of the word ‘myös’ (‘also’).

It is not entirely clear where the idea of the role of ‘dirty water’ derives from, as neither the course book nor the teacher at any point give ‘dirty water’ as a cause of the plague. Instead, the readings for the particular task describe London at the time as a city that was ‘dirty’ and had ‘unhealthy conditions’ (see Figure 8). Some pages earlier, the course text describes ‘open sewers’ as carrying diseases and water pumps taking their water from rivers ‘full of filth’. It seems thus that Alma and Tuuli are referring to either this part of the course text (even if it describes an earlier historical period, the Tudors) or the ‘dirty water’ in Extract 68, using the text as a resource for the present task. Despite a range of possible origins for ‘dirty water’, it is presented as something that the recipient is expected to be aware of, indexed by its marking as a familiar item by the use of the pronoun ‘se’ (‘that’), which works here in a similar vein to a definite article (see Laury, 1997).

Though this fire caused so much loss it was in some ways a good thing, for the old city was dirty and overcrowded, and in these unhealthy conditions the Great Plague (see Figure 8) of the year before still lingered on. Apart from that, the streets of the old city were too narrow for the coaches of the 17th century. (CB)

Figure 8. The Plague of 1665 in the course materials

The other factor, besides which dirty water ‘also’ caused the plague, left unmentioned in this sequence, is naturally the ‘rats’. Shortly after Extract 68, Alma initiates the following sequence, analysed previously as an example of how requesters may recruit ‘possible knowers’ from outside the confines of their group during task work.

Extract 69. Where did the rats come from? (shown previously as Extract 9)

01 Alma	->	ai, (.) Mauri? oh, Mauri? {SHIFTS GAZE FROM DESK TO MAURI}	
02		(1.2)	
03 Mauri		°hɦm°	
04 Alma	->	where did the rats °<come>°	
05 Mauri	->	err (.) from India	
06		(1.8)	
07 Alma		<like swim↑mi::ng o[::r,>	
08 Mauri		[no (.) in a boat	
09		you know, (.) a banana boat {ALMA SHIFTS GAZE TO HER DESK}	
10 Alma		o<kay>	
11 Mauri		well not really a banana boat but	
12 Alma		<came o:n> ((BEGINS WRITING))	

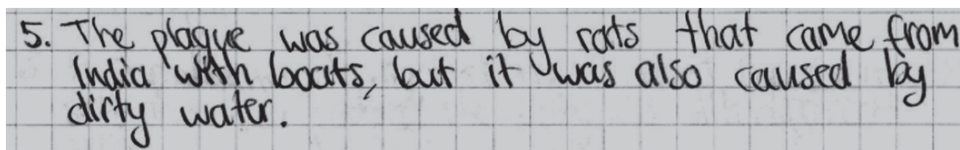
As was previously noted (p. 104), Alma discontinues her writing activity and summons Mauri, who is seated in the adjacent table. As reciprocity is thus secured, Alma requests information using a *wh*-interrogative about the origin of ‘the rats’ at line 4, which Mauri subsequently (and unproblematically) provides. Similarly to extracts 66-68, we see that the relevance and the identity of ‘the rats’ (or ‘they’) for the interactional activity is taken as evident to and by both speakers. What from an etic viewpoint may therefore seem like a vague and an unclear method for producing a request that provides very little context, seems to cause no threat to the intersubjective understanding of what social action is being accomplished. In other words, ‘the rats’ is heard to refer to Mauri’s previous knowledge display in whole-class talk earlier in the lesson when asked about the same topic by the teacher (Extract 65). Through recipient-designing her request this way, Alma is thus holding Mauri accountable for re-producing knowledge he has on a previous occasion displayed. As Mauri does this at line 5, Alma invites Mauri to specify his answer further before going back to her task.

Notice also how on this occasion the requesting turn is formatted as an alternative question which explicates the first option but only projects the second, a vehicle that allows Alma to do more than simple ‘asking’. The highly salient prosodic delivery of the word ‘swimming’ with a rising pitch on the second syllable and word-final stretching, together with the turn-final ‘or’ index Alma’s weakened commitment to the rats’ proposed means of transportation (see Drake, 2013, pp. 168-185). Such a weakened commitment to an answer does not extend to Mauri, however, who maintains his K+ position and claims at lines 8-9 that the rats arrived on boats. For Alma, this answer is sufficient, as is clear

from her beginning to disengage from the sequence by shifting her gaze back to her task sheet after Mauri has named 'boats' as carriers for 'the rats'. Keeping her gaze on the task sheet, she closes the sequence with an acceptance token 'okay' at line 10, before Mauri slightly repairs his previous answer regarding the type of boats on which the rats travelled.

In summary, it is not only Alma's request design but also her choice of recipient which orients to both students' shared history (Mauri's previous knowledge display). As the speaker who originally introduced the idea that the plague of 1665 was caused by rats, Mauri has primary epistemic authority to remind others what he has claimed as their country of origin. He is therefore a very likely candidate to be able to provide a knowledgeable response to an information request concerning such a topic. This authority is visibly invoked and informs the selection of a recipient in Extract 69, even if Alma was there when Sylvi claimed knowledgeability by answering a nearly identical request presented by Esteri (lines 13-15 in Extract 67). Keeping this in mind, it is possible that Sylvi's subsequent 'confession' of uncertainty (lines 21-24) is thus oriented to by Alma in Extract 69 by not addressing her but seeking instead information 'straight from the horse's mouth', even beyond the confines of her student group.

Similarly to the production of Susanna's essay (Figure 5), Alma's written answer to the task 'What caused the plague?' (see Figure 9) shows how what on the surface seems an unremarkable task answer consisting of a few lines of text may be constructed by assembling together interactions and texts and performing operations on such 'public substrates' (see Goodwin, 2013) for social action. In Alma's case, putting together the components of her task answer that attributes the outbreak of the plague of 1665 to rats that came from India and the unclean conditions of the time involve the maintenance of an 'epistemic ticker' (cf. Heritage, 2012b) as regards what knowledge is established in whole-class talk. It also represents knowledge that is conveyed by her turn design and recipient selection in her subsequent requests. It is argued here that such monitoring of interactional events for possible future relevance is one way in which 'learning' manifests itself in classroom context.



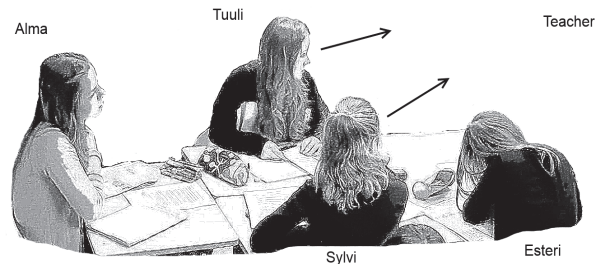
5. The plague was caused by rats that came from India with boats, but it was also caused by dirty water.

Figure 9. Alma's task answer to question "What caused the plague (suom. rutto)?"

Besides constructing continuity by drawing on others' previous knowledge displays for the purposes of accomplishing a task answer, students also construct longitudinal trajectories of learning by holding on to some previously displayed epistemic position or treating it as incorrect in the light of some new evidence. As illustrated in the context of contesting K+ responses in section 4.6.4, students may, following the teacher's ratification of one response over the

other, orient to having been right 'all along' before the teacher's participation. Monitoring what is being said and done in the classroom allows students to use such information at another point in time to construct various knowledge-relevant social actions. They may, for example, retrospectively insist on being right or show that a previously displayed knowledge state has undergone a change. Consider extracts 70-72, which illustrate how students construct an understanding of what a Yorkshire pudding is over the time period of two consecutive lessons. In Extract 70, the dish is identified by the teacher as a future homework⁷⁴, which paves way for a knowledge gap concerning the meaning of the word 'pudding'.

Extract 70. What is a pudding?



- 01 T and as a consolation for writing
 02 -> I say that next week's homework for you
 03 -> will be to- (.) make Yorkshire pudding
 04 so it will be cooking and or baking so
 05 it will be a b- m- °bit [more interesting°
 {TUULI AND SYLVI ESTABLISH MUTUAL GAZE
- 06 Sylvi [ai †täällä
 oh †here
- 07 Tuuli kotona. (.) kotiläksynä
 at home. (.) for homework
- 08 Alma °Sylvi.° (.) tehäänkö yhdessä
 shall we do it together
- 09 Sylvi [joo
 yeah
- 10 Tuuli [heh heh
- 11 Sylvi -> mikä on <pudding> [(onko se)
 what's <a pudding> (is it)
- 12 Alma -> [(sellasta)
 (that kind of)
- 13 Tuuli -> semmosta [<jälkiruoka>[juttua
 that kind of <dessert> thingy
- 14 Sylvi [joo, [joo
 yeah, yeah
- 15 Alma -> kiinteä,
 firm,
 (0.7) / SYLVI'S GAZE TO ALMA
- 17 Esteri LIFTS GAZE FROM DESK
- 18 -> †se on vanu[kasta.
 †it's custard
 {SYLVI SHIFTS GAZE TO ESTERI
- 19 Alma [(juttu)
 (thing)
- 20 Sylvi °†joo°
 °†yeah°

⁷⁴ See also Extract 4, which shows other students in the same situation.

The extract takes place as the class have been wrapping up the previous day's activity and the teacher is introducing a new written task to be completed during the rest of the lesson. At lines 1-5, she orients to the nature of the written tasks as possibly demotivating by describing a forthcoming hands-on task, baking Yorkshire puddings, which the class will get to do as a 'consolation' homework next week as something 'more interesting'. This announcement occasions two knowledge gaps in the focal student group, as Sylvi first establishes mutual gaze with Tuuli and thereby 'other selects' (see Bolden 2011; Bolden 2012) her to confirm whether the task will be carried out at school or at home (lines 6-7). Sylvi's repair initiator uses the Finnish 'ai' ('oh') to mark her turn as an inference based on the teacher's extended turn. Tuuli disconfirms and points out that the task will be homework, as indeed the teacher has just claimed.

Following the making of plans for the baking arrangements (lines 8-10), Sylvi presents another request at line 11. This time she queries the meaning of the English word 'pudding' (as opposed to 'Yorkshire pudding'), and receives responses displaying knowledge from all three other students, as contributions that jointly construction a meaning for the word. At line 13, Tuuli offers a conceptually broader category of 'desserts'; at lines 12, 15 and 19, Alma appears to describe it as 'thing' that has a 'firm' texture; and, lastly, at line 18 Esteri joins in the conversation and defines 'pudding' by means of providing a Finnish equivalent for the word, 'vanukas', which in fact tends to refer to custard-based deserts. Note how Sylvi attends to and accepts all responses as valid: as Alma's intonation at the end of line 15 does not indicate the end of her turn, Sylvi shifts her gaze during the 0.7 second silence to see if Alma will resume it, only to immediately re-orient her gaze to Esteri, who is the first to take the floor at line 18. The sequence is closed as Sylvi, similar to line 14, uses the token 'joo' ('yeah') at line 20 to signal that the knowledge provided has been received and accepted.

Once displayed, speakers' commitment to specific knowledge states can be made relevant in later interactions, not only in the immediate sequential context (e.g. Extract 58), or in the course of the same lesson (e.g. Extract 69) but even after several days. This is illustrated in the next extract, which shows the same group in the next lesson (six days after Extract 70) in a situation that immediately follows the teacher's having shown the class a video recipe for making Yorkshire puddings.

Extract 71. After the video recipe (YP)

ESTERI SHIFTS HER GAZE SLOWLY TOWARDS ALMA & SYLVI

01 Esteri -> †mää luuli et se oli makeeta
 †I thought that it was sweet

02 Alma -> nii mä [äki
 so did I

03 Sylvi -> [†määki
 †me too

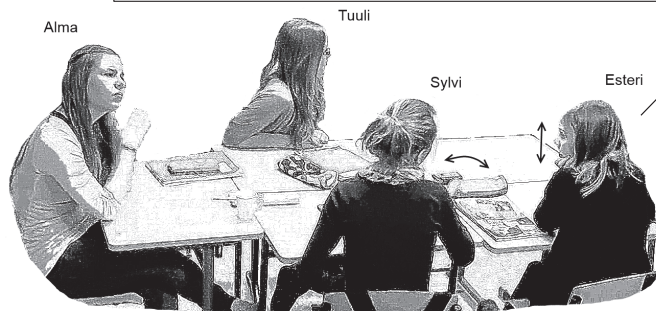
04 Alma -> †mää luuli [et se o niinku pudding o †vanukas(ta)
 †I thought that it's like pudding is †custard
 {FROWNS EYEBROWS

05 Esteri -> [ja- (.) pudding o ↑vanukas
and- (.) pudding is ↑custard

06 Sylvi ↑nii-i
↑yeah

07 määki [aatteli et se o semmosta (len-) (.) semmosta-
I also thought that it's that kind of (.) that kind of-
{ 'WHISKS' WITH HAND

08 Esteri -> [pudding (.) on (.) englanniks (.) vanukas
pudding (.) is (.) in English (.) custard
{ 'NODS' AT EACH FIRST SYLLABLE OF THE WORDS



09 (0.6) / ESTERI SHIFTS GAZE TO SYLVI

10 Sylvi ↓hyytelömäis[tä
↓jelly-like

11 Esteri -> [en tiiä se on- (.)
I don't know it's- (.)
{ SHIFTS GAZE TO ALMA

12 -> niinku Amerikassa ainaski pudding (.) on vanukasta
like in America at least pudding (.) is custard
{ SYLVI NODS

13 (0.7)

14 chocolate pudding (.) >tai joku muu< pudding
>or some other< pudding

15 SHIFTS GAZE TO DESK AND HANDLES HER COURSE TEXT

16 -> >emmää tiiä<
>↑I don't know<

17 (1.5) / ESTERI GLANCES AT ALMA AND SYLVI

18 -> britti- (.) britit o outoja
British- (.) the Brits are weird

Shortly after the video recipe showing how to oven-bake Yorkshire pudding has finished, Esteri begins to shift her gaze towards Alma, projecting a turn-initiation. At line 1, she announces as a previously held thought that 'they' (Yorkshire puddings) were sweet in a turn that is delivered with a markedly rising intonation that renders it a character of 'wondering'. Such a turn formulation not only states that the Yorkshire puddings are in fact not sweet, but at the same time, it also displays to the others a prior epistemic state in the form of claiming a belief at some point in time that they would be 'sweet'. But why is this type of formulation selected over a number of other, at the same time possible and 'correct' ways of essentially conveying that 'Yorkshire puddings are savoury'?

As it turns out, Esteri's announcement quickly receives animated (and partly overlapping) responses from Sylvi and Alma that affiliate with its affec-

tive stance at lines 2-3. These echoing responses, produced as prosodically marked through high pitch and word stress, claim an equivalent epistemic position as regards the flavour of Yorkshire puddings by maintaining that they held the same thoughts as Esteri independent of her (cf. Heritage & Raymond, 2005). At line 4, Alma underscores her claim to independent epistemic access at a prior point in time by asserting to 'have thought' Yorkshire puddings were not only 'sweet' but that they belonged to a more precise category, that of 'custards' ('vanukas'). In a talk that appears as precisely choreographed, Esteri too presents a similar claim that 'pudding is custard', overlapping with and addressing Alma with whom she has established mutual gaze.

It is noteworthy that Alma's turn at line 4, which does not involve self-repair by means of cut-off or any lexical particles, is formulated so that it may do two 'possible' (Schegloff, 2006) claims regarding her previously held knowledge state on Yorkshire puddings. Had she stopped the turn after the word 'pudding', the turn could be heard as 'I thought it [i.e. YP] is like a pudding'. In this case, the turn would not question the correctness of an understanding of puddings as indeed custard-like desserts but rather the belonging of Yorkshire puddings in such a category. The second possible hearing – after the turn-final '...is custard' ('o vanukasta') – approximates a contesting of an understanding that 'pudding means custard (vanukas)' in the light of contrary information presented by the video. As it turns out at line 8, the second possible hearing is indeed how Esteri appears to attend to Alma's turn: she produces a noticeably staccato assertion that pudding means in English 'custard' ('vanukas'), accomplishing it not only through word stress but also by nodding her head at each word-initial syllable. By maintaining her previously held position in such an emphatic manner (from line 5), she thus responds to the just-prior turn by Alma as having raised a doubt that pudding might in fact not be 'custard'. Partly overlapping with Esteri's assertion, Sylvi also produces a display of previous thoughts at lines 6-7 and 10, describing her understanding of Yorkshire pudding ('it') as 'jelly-like'.

Following her prosodically marked assertion, Esteri qualifies it in a long turn over lines 11-18. In it, she insists on her knowledgeability regarding how the term is used in the US as a way to account for the apparent confusion with differing usage of the term in different varieties of English. In doing so, she formulates an 'at least in X' account whereby she claims that her previous thought that pudding, as exemplified by 'chocolate pudding' (line 14), means custard, and that a different meaning of 'pudding' is thereby a non-US English peculiarity. Notice how Esteri on two occasions claims insufficient knowledge in the form of 'I don't know' (lines 11, 16). Rather than working as preliminary epistemic hedges (cf. Weatherall, 2011) that convey less than full committal to what follows, both occasions appear to precede a search for a plausible explanation to this discrepancy between known and perceived. The variation within the English-language user community that Esteri only alludes to in her 'at least in X' argument (at line 12) is made more explicit, a matter of moral normativity, as she claims at line 18 that it is due to the British being 'weird'. In this light, Es-

teri's conduct (in particular her turn at line 1) in Extract 71 reminds of Jefferson's (2004b) description of how extraordinary events can be normalised through turns such as 'at first I thought X but then I realised Y'. As Jefferson shows, such turns are often in search of an account that would explain why the 'first thought' might have been plausible, or in-principle correct and normal. In Extract 71, such an account is never provided by the three other students but instead Esteri offers it by herself at lines 11-18. Interestingly then, the use of a normalising device thus provides a way to resist a change of knowledge state afforded by a conceptual conflict between the different meanings of 'pudding' which the students have brought into their group conversation.

Taken together, extracts 70 and 71 illustrate how students may make relevant previously held knowledge states beyond the immediate sequential context. Notice that in Extract 70 after the teacher mentions 'Yorkshire puddings', Sylvi's information request targets the meaning of 'pudding' only and receives knowledgeable responses from all three group members confirming the referent as a sweet dessert. In Extract 71, six days later, after a video recipe has observably demonstrated that Yorkshire puddings are in fact not a dessert, Esteri's announcement of a previous belief invokes the events of the very sequence shown in extract 70. It also sparks off a sequence in which the three other students make similar claims to previously held beliefs. Even if Extract 71 appears to represent an occasion in which students make a previously held knowledge state relevant for the purposes of subsequent talk, the existence of the two events alone does not in itself prove that in Extract 71 the oriented-to knowledge states are those that had been produced in response to the knowledge gap in Extract 70. It is possible that they are individual knowledge states which have not been produced in and for a social event. However, what suggests that those knowledge states, or previously held 'beliefs' ('mää luulin') as the speakers in Extract 71 refer to them, are produced and heard as referring to the events of Extract 70 is the degree to which they are treated as shared. Note how Esteri's initial claim that she thought Yorkshire puddings were 'sweet' is received with quick, prosodically marked claims of the same sort, which might be seen as 'too eager' had it reported a private belief, something which Alma and Sylvi would have been previously unaware of. Similarly, Esteri's forceful maintaining that pudding is 'custard', again with a striking prosody, may be motivated by her having been the very person to provide that knowledge in Extract 70. In fact, the two other speakers treat their epistemic position regarding the meaning of 'pudding' as far less settled in Extract 71.

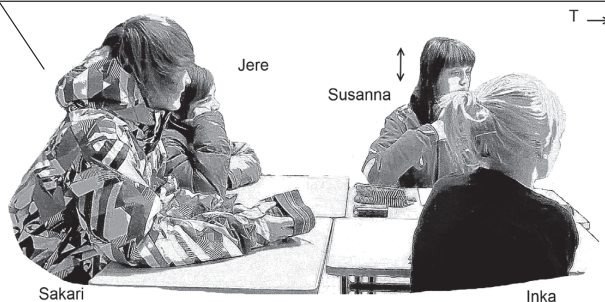
In addition to invoking knowledge states displayed in previous interactions to report earlier beliefs, participation in interactional events can be drawn on to assume new interactional roles that involve quite different epistemic positions. Keeping the focus on the instruction of Yorkshire puddings, it was noted in Extract 4 how, prior to seeing the video, Sakari requested the meaning of 'pudding' from Susanna (similarly to what Sylvi does in Extract 70). Following the video recipe, he also teased Susanna and contested her answer of 'pudding as custard' (Extract 59). This is one way in which a prior knowledge display

may be oriented to at a later point in time, one that finds its warrant in having had access to other sources of information (in the form of the video) that enable a student to position himself as knowledgeable enough to contest another student's previous K+ response (regarding the meaning of 'pudding'). As has been argued in this chapter, such changes in - or trajectories of - epistemic positioning have to do with learning, be they accomplished over the relatively short time interval of an individual sequence, during the same lesson, or over several days.

Consider the next extract, which occurs the day after Yorkshire pudding video recipe. In it, Susanna, prompted by Sakari, is telling the teacher of her baking the day before and complains that her puddings did not rise in the oven. This sparks off a discussion in the group on how they 'were supposed' to be baked, something which Sakari claims - and shows - to know quite a bit about.

Extract 72. The correct way to bake Yorkshire puddings

01 Susanna -> erm [(.) †they didn't like (.) err,
-> {MOVES HANDS IN FRONT OF HER
02 Sakari [no oliko (hyviä)
well were they (good)
03 (0.8)
04 T -> rise
05 Susanna -> †rise yes (.)
{LIFTS ONE ARM ABOVE HEAD
06 they all were like- (.) this high
{'PINCHES' WITH THUMB & I FINGER
07 that kind of-
08 MOVES RIGHT HAND HORIZONTALLY FROM LEFT TO RIGHT
09 T yeah it's (.) it's actually a question of: (xx)
10 it's probably a question of <how> hot you get it
11 sometimes (.) an' some[times the- (.)
12 Sakari -> [oliko teillä kakssataa
did you have two hundred
13 -> [astetta
degrees
14 T [they simply they do not rise.
15 Susanna NODS AND QUICKLY GLANCES AT SAKARI...



16 Jere ois kannatta[nu laittaa [vähän enemmän
one should have put a bit more
17 T [but let's see
18 Sakari -> [olikse (.) juttu siellä=
was the (.) thing there=
{SUSANNA GAZE TO S&J

19 -> =lämpiämässä
=heating up
20 Susanna -> ai täh?
oh what?
{GLANCES AT INKA AND RETURNS GAZE TO SAKARI
(0.7)
21
22 Sakari -> sinne piti laittaa se levy sinne (.)
one had to put the plate in there (.)
{POINTS WITH I FINGER AND
MOVES HAND FROM RIGHT TO LEFT



23 -> sisälle kakskytä minuuttia lämpee[mään]
inside for twenty minutes to heat up
24 Inka [mmm (NODS)]
25 Susanna -> ↑nii-in ja se voi
↑ye::ah and the butter
26 Sakari nii.
yeah
27 (2.0) / SUSANNA AND SAKARI GLANCE AT THE TEACHER
28 Susanna -> ei muuta ku se rasva palo.
except that the fat burned.
29 (0.8)
30 Sakari fhhh (SMILES)
31 Susanna no foikeesti siitä tuli iha ↑mustaaf
well fseriously it got completely ↑blackf
32 Jere -> ei sitä rasvaa ois sinne [pitäny laittaa
one shouldn't have put the fat in there
33 Sakari -> [sinne ois pitäny laittaa <öljyä>
one should have put <oil>
34 Susanna -> [↑nii-in
↑ye::ah
35 Sakari -> [jotai (.) oliivi oilia=
some kind of (.) olive oil=
36 Jere =>ni [ja< se ois pitäny laittaa=
=>yeah and< it should have been put=
37 Susanna -> [↑nii-in
↑ye::ah
38 Jere =sit se jälkeen ku se on otettu pois [sieltä
=after it had been taken out from there
39 Susanna [eihä
no it shouldn't
40 Sakari -> [eeii
no:;
41 -> se ois pitäny laittaa fennef hehe
it should have been put fbeforef hehe
42 Jere minä en ennen laita
I'm not gonna put before

Prompted by Sakari to show the photos that Susanna took of her Yorkshire puddings to the teacher (not shown in the extract), she, together with the teacher, formulates a problem over lines 1-8. Namely, the problem concerns the poor rise of the puddings during baking in the oven. Notice how this involves multiple word searches during which Susanna uses gesture to describe the nature of the word she is searching for and to solicit help from the teacher. She first brings her hands in front of her torso during the word 'like' at line 1, signalling that the progression of the turn may be compromised, and as the teacher after a brief silence provides the word 'rise' (line 4), which makes Susanna's turn syntactically complete, she repeats it and lifts her hand up, as if to describe the process of 'rising'. Following the second 'like' at line 6, she uses her thumb and index finger to display an approximation of the tallness of her puddings, a gesture which is perfectly co-ordinated with the utterance 'this high'. Lastly, Susanna completes her verbal turn construction unit ('that kind of') by moving her hand horizontally from left to right, as if to gesture that the puddings were 'flat' (line 7).

Shortly after the teacher begins a turn to normalise (cf. Jefferson, 2004b) the poor oven spring (lines 9-11), Sakari, too, begins to diagnose what may have gone wrong with the baking over a chained sequence of questions that he directs at Susanna parallel to the on-going teacher talk. At lines 12-13, Sakari checks the oven temperature. It is remarkable that the formulation ('oliko teillä kakssataa astetta', 'did you have two hundred degree'), which conveys a desired temperature, is in fact the same which the teacher had instructed to use when introducing the homework in the previous lesson. Having received a confirmatory nod from Susanna (line 15), who is still following the teacher at the front of the classroom, Sakari moves on to check another factor as a possible cause for the puddings' poor rise, that is, whether Susanna preheated the baking tin enough before putting the batter in the oven. As Sakari's initial formulation ('oliks se juttu siellä lämpiämässä', 'was the thing there heating up') at lines 18-19 only receives an open-class repair initiator (Drew, 1997), he repairs his 'question' into a declaratively formatted piece of advice describing how one 'had to' preheat the baking tin for twenty minutes (lines 22-23). Similarly to the baking temperature, this is something which the teacher had twice mentioned during the previous lesson.

Both Sakari's checks of what may have gone wrong with the baking of Yorkshire puddings are delivered from a position that claims and demonstrates expertise. That is, even if he syntactically formats them as polar 'questions' asking for how Susanna bake her puddings, the significance of each answer polarity vis-à-vis what constitutes the correct baking procedures is being made quite clear. This is evident not only in the way the polarity of the 'question' is predisposed towards confirmatory answers but also in the way the latter 'question' effortlessly gets repaired into a generic ('one had to') formatted statement. However, the way Susanna receives Sakari's claims to superior epistemic status regarding baking, indexed by his taking the role of advice provider, makes it quite clear that she does not take such assumed distribution of knowledge as

unproblematic. At line 25, Susanna responds to the assertion about the need to preheat the baking tin as knowledge she already possesses: she accomplishes this with the discourse particle 'niin' (~'yeah', at line 25), which is here highly emphatically produced with rising intonation and elongation. As Sorjonen (2001, pp. 124–129) describes, 'niin' is not only a much rarer response to directive utterances in comparison to another particle option, 'joo' ('yeah'), but it often also appears to foreshadow rejection of the directive, for example in situations where the recipient claims independently to have decided to follow the course of action proposed by the directive (see also VISK §1046). This is precisely what is being managed here: Susanna's emphatic 'niin' at line 25, followed by the addition of a further detail of the correct baking process (that also the butter needs to be preheated) convey a claim to having known and followed the correct baking instructions, which Sakari's turn at lines 22–23 has questioned.

At line 28, Susanna formulates a complaint related to preheating the tin, namely that the fat that she added in the tin got burnt. What is first taken by Sakari as an amusing anecdote (line 30), later motivates two further generic, 'one had to' formatted pieces of advice from Jere and Sakari. First, Jere states that the fat 'shouldn't have' been put in the oven in the first place (line 32), whereas Sakari claims, partially in overlap, that the puddings 'had to' be baked using oil (as opposed to butter), which he further specifies as 'some olive oil' (lines 33, 35). Yet again, Sakari is constructing his advice by drawing on previous instructions to use oil (not olive oil specifically though), something which was on several occasions mentioned by the teacher in the previous lesson, in conjunction and contrast with the video recipe, which mentioned a number of different types of fat as possible options. And equally repetitively, Susanna receives the advice with similar emphatic productions of the discourse particle 'niin' (lines 34, 37), thus claiming that she is fully aware that she was supposed to use oil, even if she did not end up doing so.

As the other piece of advice given at line 32 by Jere (who happened to come late in the previous lesson) escapes the attention of the parties, who are dealing with the type of fat that should have gone in the tin, he redoes his advice at lines 36 and 38. Compared to the first go, he has negated the assertion and, as opposed to referring to generic fat, he affirms Sakari's just-prior (line 35) suggestion to use oil, which he claims is supposed to go in 'after' the tin has been preheated. Note how this is unanimously and without mitigation disapproved of by Sakari and Susanna over lines 39–41, in turns which have already been begun before Jere has had time to finish his. Sakari's 'no' in particular is stressed and elongated, aspects of turn design that make it very salient. Furthermore, he produces the word 'ennen' ('before') with laughter, which constructs it as a somewhat condescendingly delivered replacement of the erroneous 'jälkeen' ('after') in Jere's prior turn.

All in all, at stake in the discussion Extract 72 are the procedures that amount to the correct way of baking Yorkshire puddings. In the course of that discussion, the students accomplish various social actions such as asking about and describing a previous baking attempt, as well as giving and resisting advice.

These actions, and consequently the complete sequence, were made possible by the students' participation in the previous day's lesson during which Yorkshire puddings and a recipe for baking them were introduced by the teacher. This is not only to remark somewhat trivially that the sequence would not have taken place had baking of Yorkshire puddings not featured as part of the course. Rather, and more importantly, it is to recognise that what counts as knowledge in Extract 72 is something that has been established and ratified in the previous lesson. This allows the students to assume and display different kinds of epistemic positions regarding that knowledge. It allows Sakari – who in fact confessed to not having baked any puddings himself at home – to draw on that very knowledge to try and determine whether Susanna heated her oven to the correct temperature, whether she preheated the baking tin and the fat before adding the batter in the tin, and whether she used butter or oil. Equally so, the knowledge established during the previous lesson allows Susanna to resist Sakari's claims to having primary epistemic status regarding baking Yorkshire puddings. In short, these prior events form a background against which action is built and ascribed in this sequence. It is argued here that 'learning' is a concern to participants in situations like these when participation in shared events informs and is invoked in the design of social actions and claims to knowing. In this regard, it is illuminating to see the trajectory in the way Sakari positions himself epistemically regarding 'puddings'. On the one hand, before seeing the video recipe, in Extract 4 he treats the meaning of the word 'pudding' as a knowledge gap, whereas in Extract 59, after the video, he teases Susanna for getting the meaning wrong. This increase in assumed and displayed competence culminates on the next day (Extract 72) when he upgrades his claims to expertise one more notch and begins to diagnose Susanna's baking.

5.4 Drawing on out-of-school experiences

Previous extracts displayed in this chapter have described how students may construct various social actions, such as announcements of prior beliefs, giving and resisting advice, as well as requesting information by drawing on previous interactions in the classroom. Furthermore, in section 4.6, it was pointed out that students may, following the teacher's ratification of some contested knowledge as correct, retrospectively orient to their displayed epistemic positions in the prior sequence. As shown, this can be done for example by insisting upon 'having been right all along' (Extract 58) or sanctioning the other for having been right (Extract 60). In addition to making relevant somebody's knowledgeability – or the lack thereof – in joint previous interactions, students sometimes use their experiences or knowledge in matters related to everyday life outside the school for constructing actions such as accounting for knowing while resolving knowledge gaps (see also Jakonen, 2014). Consider the next two extracts, in both of which experience of having played *Runescape*, a medieval-

themed computer game is mobilised in two different sequences for two different knowledge gaps.

In Extract 73, shown previously in chapter 4 to illustrate how reading aloud may occasion the provision of knowledge, Konsta reads aloud a task item addressing ‘highwaymen’. Shortly after this Mauri mentions Runescape in conjunction with providing the grounds for his K+ response.

Extract 73. What was a highwayman (shown previously as Extract 47)?

```

01 Konsta      seven?
02              (3.7)
03              -> what was a highwayman
04              (1.0)
05 Mauri       [(-)
06 Riku        [highway↑man
07 Konsta      m[mh
08 Mauri       -> [erm (.) I suppose they were ↑thieves you know? (.)
09              >highwayman<
10              (0.7)
11              .hhh
12              (0.8)
13              -> @yeah@ (.) they are ↓thieves
14 Konsta      >highway star<
15 Riku        °fh[hf (0.7) highway star°
16 Mauri       [yeah. (.) but they were highwaymen
17              (1.2)
18              -> highwayman (.) erm I can, (0.9)
19              -> I'm almost remember them from (.) °RuneScape°

```

As noted in chapter 4, Konsta’s announcement of his position in the task sheet (line 1) and his reading aloud of the corresponding question (line 3) becomes treated as an invitation to provide what amounts to the correct answer to the question. Mauri does this at lines 8-9, claiming that he ‘supposes’ the highwaymen were ‘thieves’. Notice how after no uptake appears during a 0.7 second silence, Mauri takes a sharp in-breath and upgrades the epistemic stance of his response at line 13 from a relatively weak ‘supposition’ into a more certain claim using a [confirmatory token ‘yeah’ + declarative ‘they are thieves’] format. The upgraded claim to knowing is indexed by the prosody of the two versions of the word ‘thieves’: whereas the first is produced with a rising intonation (line 8), the second production of the word at line 12 employs a falling intonation that appears as more substantial than a simple turn-final intonation contour to convey that the turn’s preoccupation with ‘doing confirmation’.

Shortly before the extract, the students had been entertaining themselves with (off-task) talk about ‘historical disasters’, and it appears that Konsta’s participation orients to the current sequence as being at the interface of task-related and off-task talk. He receives Mauri’s knowledge display by mentioning ‘highway star’, an item that sounds similar to the word ‘highwayman’ and that is a possible reference to a well-known Deep Purple song (line 14). Such a topical disjunction is treated by Riku as a humorous word play. Mauri, on the other hand, responds by maintaining the topic on ‘highwaymen’ (line 16) and ac-

counting for his knowledge of the word's meaning with his experiences in having played the computer game Runescape (lines 18-19).

Note how 'Runescape' is employed as a device for a specific social action, that of backing up one's claim to knowledge, which on multiple previous occasions has not been accepted as such. Konsta *could have* produced an acceptance token – indeed was invited to do so – at lines 10, 14 or 17, but after every non-occurrence, Mauri upgraded his claim a notch in a sequence that culminated in the provision of the grounds for why he 'knows' the word. This was done by invoking expertise in playing a particular video game that features in medieval settings. In many ways, this is similar to how Esteri accounts for 'pudding' meaning custard with an 'at least' in America argument in Extract 71. As opposed to turns that do make relevant previous shared experiences in the classroom (e.g. knowledge of the significance of 'rats' for the plague), such a formulation of knowing because of a previous *individual* experience claims that the recipient of the turn has limited access to the concerned epistemic territory.


Accounts are not always done to back up one's claims to knowledge as in Extract 73, but on some occasions, they may orient to the social implications of knowing 'too much', a state of affairs which among secondary school students may not always be desirable. This happens in the next extract, in which Runescape is used again, this time in a different group by Susanna to account for her knowing the word 'dagger'.

Extract 74. Dagger (shown previously as Extract 12)

```

17 Inka    -> what is a dagge::r
           {GAZE TOWARDS SAKARI; SHIFT TO SUSANNA
18 Susanna -> it is an (.) [err (.) th]at kind of,
19 Sakari  -> [knife ]
           {'STABS' WITH RIGHT HAND
20 Inka    [(net) ]
21 Susanna [knife,] (.) err, (0.8) they-
22         there are err that [kind of in R:unesca]pe
           {GLANCES AT SAKARI
23 Inka    [ >meat knife< (.) >meat knife< ]
24         (2.0)
25 Susanna I wouldn't know [it if I would not have not] err,
26 Inka    [r:::u:ne::: ]
           {GAZE TO TEXT
27 Susanna played Runescape
28 Inka    err, (1.2) how are they [similar ((READS A TASK))
29 Sakari  -> [say to this
           {POINTS AT THE RECORDER
30         -> what have you played

```



As was illustrated in Extract 12, Inka's request for the meaning of 'dagger' at line 17 follows a sequence in which Susanna and Sakari have corrected Inka's read-aloud from 'dogger' to 'dagger'. Using her gaze, Inka addresses the request to both of her group members, both of whom provide knowing responses

over lines 18-21, establishing that 'dagger' is a type of 'knife'. Following this, Susanna narrows down the somewhat general category of knives by making the computer game Runescape relevant in a turn that she addresses to Sakari by means of a gaze shift (line 22). Notice how the formulation 'that kind' treats daggers as not quite ordinary knives, which are found in kitchens, dinner tables, and the like. This indicates that 'daggers' are a special type of a knife. Similarly to the previous extract, the formulation of the game Runescape as indeed 'Runescape', as opposed to, for example, an 'online fantasy game', or 'this game that I often play' treats the game as a resource for practical reasoning that is known and available to the recipient(s).

Following an approximately 2.0 second pause, during which Susanna's definition of 'dagger' receives no response from Inka and Sakari⁷⁵, Susanna re-topicalises Runescape. This time (lines 25, 27) she uses it to account for her knowledge of the word dagger. The account is delivered in a similar sequential location compared to Mauri's account in Extract 47 (lines 18-19), that is, following a silence at a point in which a recipient's acknowledgement and either acceptance or contesting of the provided knowledge is a concern (see section 4.6). However, Susanna's account does not only orient to backing up her epistemic status she has carved up for herself by displaying knowledge of 'daggers'. By presenting her knowledge as crucially dependent on her gaming experiences, to the degree that she 'wouldn't know' had she not played the game, the account also denies the role played by 'studying', 'reading', or any other goal-oriented manner of developing expertise. Such a claim to being proficient solely because of certain out-of-school experiences may be one way in which (secondary school) students can mitigate possible negative perceptions stemming from knowing 'too much' in the classroom, and accomplish knowledgeable and social affiliation at the same time. Affiliation in the sense of reciprocal action is seen both in Inka's uptake (which actually responds, albeit late, to the first occasion of Runescape) at line 26, when she engages in word play by producing 'Rune' in a prosodically very salient and playful manner, and in Sakari's request to Susanna at lines 29-30 to 'confess' once more to the tape recorder what she has played.

Taken together, extracts Extract 73 and Extract 74 demonstrate how students can construct actions such as accounting for knowing and defining an unknown word by making relevant their prior experiences or activities outside the classroom.⁷⁶ As argued by Goodwin (2013, pp. 8-9), a routine-like way of

⁷⁵ Neither Sakari nor Inka say anything, in addition to which Inka keeps her gaze at Susanna's text. Apart from the quick glance at Sakari at line 22, Susanna's gaze is on her text, which she is going through with a highlighter in her hand (see transcript image). Sakari's facial expressions and gaze are unfortunately unavailable to the camera, however, as Susanna keeps her orientation on the desk, they are also likely to be unavailable to her.

⁷⁶ A cautionary remark is in order here: even if a person says they have learnt something from a particular experience, or at a particular context, the veridicality of such a claim is still an open issue. It is not entirely unproblematic to locate 'learning' into a specific time and place, even if this is something that people routinely orient to when they, for example, account for someone's language skills by that person's residence in a foreign country. Moreover, people can remember wrong, have false beliefs, or lie,

building human action involves the usage and transformation of various types of publicly available resources – or *substrates* – that exist in the environment. However, as shown by the interactional work done with ‘Runescape’ (and previous extracts in this section), the resources that are drawn on to assemble action need not be physically present. They may also be previous joint interactions, individual experiences, memories, etc.

What does the ability to draw on prior events tell about ‘learning’? On the one hand, we could note, or assume, that both Susanna and Mauri have previously ‘learnt’ the meaning of ‘dagger’ and ‘highwayman’ when playing Runescape, and in the previous extracts simply employ that knowledge. Such a straightforward explanation would appear to treat acquisition and use of language as separate: once a learning object, e.g. a word meaning, has been acquired, it may be later used to doing something. In this sense, having ‘acquired’ the knowledge of a word through previous experiences allows it to be used for action-production in a new context at a later point of time.

However, saying that knowledge would simply ‘carry over’ from one situation to the other, as implied by the acquisition metaphor of learning (cf. Sfard, 1998), would surely be to over-simplify things. This transfer of knowledge across time (between the past and the present) and space (from home to the classroom) is also something which the students in many ways need to ‘do’. They need to perceive the similarities between two or more events at different points in time, identify relevant sequential locations for using certain substrates (Goodwin, 2013) for the accomplishment of a specific action in the course of an activity, and then use it in interaction. Part of what goes into knowing a word is the ability to use that word – or knowledge of its meaning – in social situations, which is exactly what Susanna and Mauri are doing in the previous extracts.

5.5 Case study: finding ‘highwayman’

The previous sections of this chapter have described how students not only orient towards the future when resolving knowledge gaps, but they may also mobilise previously-occurred interactions in the classroom or outside the school to construct social action. As has been argued, this represents one way in which the interactional management and monitoring of knowledge states relate to learning. Apart from few exceptions, we have seen that this kind of knowledge construction and learning takes place within the participation framework afforded by the physical arrangement of desks forming student groups, so that students tend to resolve knowledge gaps (at least begin to do so) by recruiting the help of their group members and displaying knowledge states to them.

to the degree that societies have institutionalised procedures for finding out what ‘really happened’ (see e.g. Pollner, 1987) when accounts conflict. Here, the analytical focus is not so much on whether or not ‘dagger’ and ‘highwayman’ were ‘actually’ learnt solely through engagement with Runescape, but instead on how an account that makes relevant such an experience may be used in the social life of a classroom.

However, even group-based classrooms are spaces in which at the same time 20-30 speakers are conducting the 'same' activity, thereby forming a physical configuration that offers resources for learning that are quite distinct from a 'single' conversation between two or even a handful of speakers. Often aspects of tasks that are treated as knowledge gaps in individual groups may converge with those identified in other groups, as for example extracts showing students' work to construct the meaning of 'Yorkshire pudding' have illustrated. Thus, even when students are working on independent tasks at their own pace, they have the possibility - and indeed may even be required to - monitor what is going on in the classroom, and examine its relevance for their task work. It is such maintenance of an epistemic ticker (see Heritage, 2012b) in a complex multi-party conversational setting that the present section aims to illustrate by providing a case study that focuses on the accomplishment of a single task item involving a question on Stuart-time 'highwaymen'. In other words, how the construction of classroom as more than the sum of individual students, one that involves a uniform cohort (cf. Payne & Hustler, 1980), may be accomplished through learning-relevant processes that build and are contingent on the actions of other students and groups. This building of uniformity, occurring even during asynchronous (independent) task work, entails an orientation to the perceived problems and concerns of students being of relevance to the others.

5.5.1 'Highwayman' in the task and the course text

The following sequences of interaction, which show how the classroom members worked to construct the meaning of the word 'highwayman', took place during independent desk work for which the students had been given a worksheet on the Stuart period that was designed to be answered by drawing on the course text. As per usual for such seat work, the teacher would circulate in the classroom, being available to provide her assistance to those students who would so request. One of the questions on the worksheet was the following: "Travelling was difficult because of highwaymen. What was a highwayman?" In the students' course text, no explicit definition for the word highwayman was given but instead there was a somewhat indirect account (see Figure 10), which accompanied a short comic strip depicting a stagecoach robbery. Thus, in order to answer 'correctly' what highwaymen were, students would need to construct an interpretation using the text in Figure 10 and the accompanying comic strip rather than find any exact sentence that gives an 'X is Y' formatted definition for 'highwayman'.

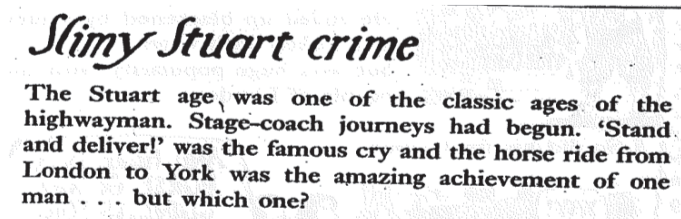


Figure 10. Highwayman in the course text

As mentioned in conjunction with Extract 55, Esteri interrupts independent task work and shifts her orientation to Sylvi (see image). She begins a turn that projects a polar request for what Sylvi (and Alma with whom she is ‘huddled together’ to write task answers) are writing as their task answer, only to shortly cut off her turn and return to investigate her course text. Esteri’s account for the abandonment of the first pair-part action and withdrawal from the sequence (line 5) attends to the (slow) progression of the other students in completing the items of the worksheet, thereby treating their incompletion of the specific task item as sufficient warrant for her withdrawal of participation from the activity.

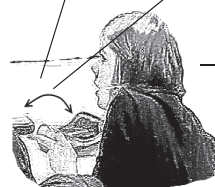
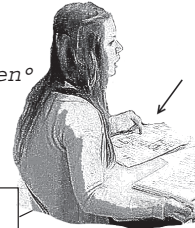
Addressing a different part of the task sheet, Tuuli, who during the account has been browsing her text, shortly afterwards turns towards Alma to request what part of the text deals with the plague (line 7). Alma, however, maintains her attention on her own task during the 0.8 second silence at line 8, providing neither an audible knowledge display nor a visible sign of alignment with the activity proposed by Tuuli’s request. Instead of pursuing Alma’s availability, Tuuli treats her ‘doing writing’ as a legitimate reason for not providing a response and withdraws from the initiated sequence at line 9 (Alma’s simultaneous, *sotto voce* turn at line 10 appears to be, and indeed are taken as, self-talk accompanying writing and not addressed to Tuuli). Seeing that Tuuli is available for talk, Esteri now asks if she ‘knows’ what a ‘highway’ is (line 11), after which the two students begin to examine their texts. Although somewhat inaudibly, it appears Esteri repeats the copula after ‘highway’, as opposed to providing the word ‘highwayman’, which features in the worksheet.

Curiously, after approximately two seconds of browsing, Tuuli provides neither a visible nor an audible response to Esteri’s request, but instead orients to the lack of response to her previously indicated knowledge gap about the plague in the course text (line 7). She redoes her turn verbatim yet prosodically more emphatically while maintaining gaze in the text (line 15). Her previous co-conversant, Esteri, provides at lines 16-17 a K+ response that makes relevant a previous event, during which the teacher, identified by nodding and pointing, ‘told it’ in the beginning of the lesson.⁷⁷ As Tuuli acknowledges the answer with the token ‘aa’ (Koivisto, 2014) and displays her understanding of which previous event Esteri refers to, both speakers resume their tasks.

What evidence is there to suggest that Esteri’s aborted sequence-initiating turn at lines 2-5 and her query of Tuuli’s knowledge state at line 11 are concerned with ‘the same’ task object, i.e. that of ‘highwaymen’. Although Esteri never got as far as describing the nature of her projected knowledge object on the first go, only approximately five seconds separate the aborted request and the one presented to Tuuli at line 11. During that time, Esteri does not visibly move on in the task, i.e. does not write anything down. These observations – as well as the fact that Esteri does nothing to mark the second occasion of the FPP

⁷⁷ In fact, the only time ‘the plague’ was talked about earlier in the lesson in whole-class talk was when Mauri answered the question about its causes, presented and subsequently ratified by the teacher (see Extract 65 and its subsequent treatment during the lesson).

- 08 Sylvi °kirjotaksää Tuuli täs[tä°
°Tuuli are you gonna write about this°
- 09 Esteri [°nii?°
°yeah?°
{GAZE TOWARDS ALMA
- 10 Tuuli joo
yeah
- 11 Alma LIFTS GAZE FROM HER DESK
- 12 -> °missä siitä highwaymen (o)°
°where does it (say) about that highwaymen°
- 13 Esteri -> °mää en löytäny itekkään sitä°
°I didn't find that myself either°
(0.7)
- 14
- 15 Alma SHIFTS GAZE TO COURSE TEXT
- 16 °koska tässä sanotaan mutta-°
°because here it says but-°
{POINTS AT THE TEXT, GAZE TO ESTERI
(0.6)
- 17
- 18 °ei siinä vähän niinku sanota=°
°but it doesn't really say=°
- 19 Esteri °=ei siin oo (.) >ku onkse<° (.)
°=it doesn't have (.) >like is it<° (.)
- 20 -> °mää mietin et onkse sellane <rosvo>°
°I was wondering if it's that kind of <a robber>°
(1.2)
- 21
- 22 -> °joka niin[ku (.) jolla [ei oo <kotia,>°
°who like (.) who doesn't have <a home,>°
- 23 Alma [°niin(ku) (.) [(tie)°
°like (.) (a road)°
(1.0)
- 24
- 25 Esteri -> °jolla ei oo kotia ja se vaan niinku-° (.)
°who doesn't have a home and he just like-° (.)
- 26 -> °matkaa hevosella,°
°rides on a horse,°
- 27 -> °>sellane< lännem mies (joka vaa)°
°>that kind of< a Western man (who just)°
{WAVES I FINGER & THUMB
- 28 -> °pyssy ja pyytää rahaa°
°a gun and asks for money°
- 29 -> °fkädet ylös tai ammunf hhh°
°fhands up or I'll shootf hhh°
{ALMA SHIFTS GAZE TO COURSE TEXT
- 30 Alma -> °stage code- (.) coach journeys (.)° ((READS ALOUD))
{GAZE TO ESTERI
- 31 -> °had begun°
- 32 (1.3)
- 33 Esteri °↑mitä°
°↑what°
- 34 Alma °stage (1.2) coach journeys had begun°
{GAZE TO COURSE TEXT
{ESTERI'S GAZE TO TEXT
{GAZE TO ESTERI
- 35 (2.2)
- 36 Alma? °(xx)°
{ALMA GLANCES AT COURSE TEXT
- 37 (1.5)
- 38 Alma -> °niin no mää, (0.8) emmää tiiä°
°oh well I, (0.8) I dunno°
- 39 (2.0)



40 -> mää jätän sen ja sit mää teen (.) sen lopuks
 †I'm gonna leave it and then do it (.) at the end
 41 (1.1)
 42 Esteri °määki tein nii muttaku (.) fmää tei(hh) jo kaikki muutf°
 °I did that too but (.) fI al(h)ready did all the restf°
 43 Alma fhhf ((BEGINS TO WRITE))

The resumption of talk about 'highwayman' begins as Alma stops her individual writing activity and selects Esteri as the recipient of her next turn at lines 1-2. As she begins to deliver the turn, the beginning of which projects a request on the locations of specific information (see also extracts 33 and 34), Esteri lifts her left-hand index finger. This gesture is treated by Alma as a request to put the initiated action sequence 'on hold', as shown in her cut-off of the turn and return to examine her worksheet (lines 4-5).

After Esteri has completed her writing, she resumes the sequence by turning towards Alma and confirming her reciprocity with the response particle 'nii?' ('yeah') at line 9. Alma then hearably redoes her cut-off turn and asks which bit of the course text deals with 'highwaymen' (line 12), an action which Esteri quickly responds to by claiming not to have found any such text (line 13). Notice how, through their conduct, both Alma and Esteri invoke the sequence that was shown in the previous extract (Extract 75). Alma does this by addressing her request to Esteri, who on the previous occasion, was the group member concerned with finding out this particular information and had shown to have progressed furthest of all the students. In this regard, it is significant that Alma does not address at any point either of the two other students, who would be seated closer to her and thus be more conveniently available for interaction. As all three students were equally oriented to their written tasks during lines 1-4 (see transcript image), the selection of Esteri as a recipient does not appear to be based on her having somehow displayed to be more available than her group members either. Rather, Alma is addressing Esteri and her only.

Besides recipient selection, the way Alma formulates her information request indexes her orientation to the events in Extract 75. To manage the degree of both parties' access to 'highwayman', she prefaces it with the Finnish demonstrative pronoun 'se', which in spoken interaction is routinely used to mark referents as identifiable or known, much in the same way as definite articles function in languages that have an article system (see e.g. Laury, 1997, also VISK §569, 1413-4, 1418). Such a treatment of 'highwayman' as a referent that Esteri is expected to be familiar with (as opposed to e.g. Tuuli's request in the previous extract which does not mark 'plague' as such) finds its warrant in the previous speech event.⁷⁸ This familiarity is also granted in Esteri's response at line 13, which uses the simple past tense to locate her 'not finding' at a specific point in time rather than in the course of an activity of longer duration, which the use of the present perfect would give reason to infer (see also VISK §530).

⁷⁸ Notice that treating Esteri as someone who can be expected to *identify* the referent is, however, not the same things as orienting to her as someone who knows the *meaning* of 'highwayman'.

As Esteri's response at line 13 is in effect a standalone 'no knowledge' claim which does not appear to be followed by a hedging knowledge display (cf. Weatherall, 2011), Alma moves on to elaborate the nature of the knowledge gap further at line 15 and onwards. In the course of doing so, she makes the course text relevant for its resolution (see transcript image). Over lines 16-18, she identifies the location in the course text which deals with 'highwaymen' and upgrades the indexed epistemic stance by showing that she has indeed found a specific bit of text that talks about 'highwaymen', but that it does not appear to 'say' the answer to the question in the worksheet. Esteri agrees with the assessment of the text as ambiguous, latching her turn immediately after Alma has finished hers at line 19. She then begins to provide a candidate description of the highwayman, one that she self-repairs at lines 19-20 into a personal answer that she has been 'wondering' ('mää mietin') as opposed to one that she would offer as the correct answer. This interpretation of the highwayman as a 'robber who doesn't have a home' but 'rides on a horse' makes relevant the portrayal of the highwayman in the comic strip that illustrates a highway robbery included in the course text. Moreover, it is accomplished by means of verbal and embodied resources over lines 20-29. Invoking the imagery of the folklore of the Wild West lines 27-29, Esteri describes the highwayman as a 'kind of a Western man' and smilingly impersonates one by using the formulaic expression 'hands up or I'll shoot'. In doing this, Esteri also forms her left-hand index finger and thumb in the shape of a gun (see transcript image) and waves it back and forth to produce a gesture that strikingly reminds the image showing the highwayman in action in the comic strip of the course text (Figure 11).



Figure 11. Opening frames of the comic strip: highwayman pointing a gun (from Horrible Histories)

Esteri's turns at lines 20-29 construct a response that claims knowledge of what highwaymen were, even if it is positioned as a somewhat hedged personal opinion. However, rather than accepting it and moving to close the sequence, at lines 30-31 Alma reads aloud a sentence ('stage coach journeys had begun') in the introduction of the comic strip in the course text (see Figure 10). This action indexes (and projects) a less than full acceptance of the provided K+ positioned response, and turns out to need repair. Esteri's prosodically modified open class repair-initiator at line 33 follows a silence of 1.3 seconds during which Esteri maintains a 'blank stare' towards Alma. These features construct the repairable as something more than a problem of hearing, namely the sequential appropri-

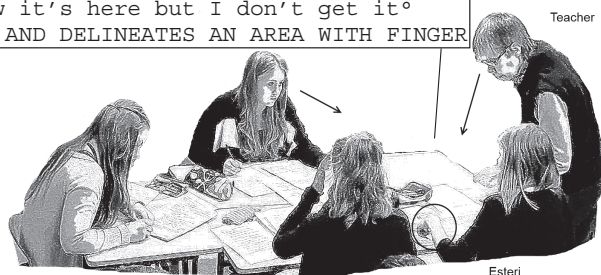
ateness of Alma's read-aloud (see also Drew, 1997, pp. 83–93): following Esteri's knowledge display, Alma's task is to accept or reject it, and it is ambiguous how the read-aloud fits with this task. As the repair is provided in the form of a repetition of the read-aloud at line 34, Esteri begins to examine her course text but, as she appears to provide no response to the read-aloud sentence, Alma resignedly claims uncertainty of the meaning of highwayman (line 38). By doing so, Alma implies non-acceptance of the candidate meaning of the highwayman which Esteri has offered. After no response is received from Esteri, who is still examining the course text, Alma then 'shelves' the knowledge gap for the time being, deciding to come back to this particular item later on (line 40). Notice how Esteri responds to these two turns by claiming to have used the very same strategy: such an account can be seen as insisting on her status as a competent advice-giver by virtue of already 'having been there'.

5.5.3 Mediating between classroom floors: highwayman in whole-class talk

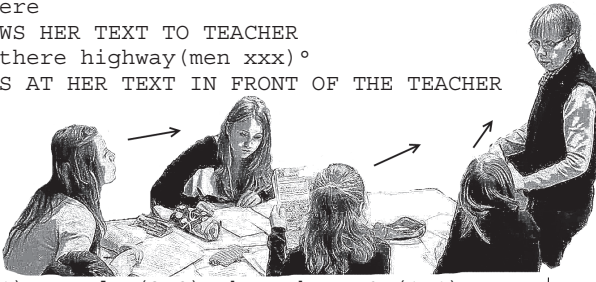
After Esteri's candidate interpretation which resulted in no interactionally ratified knowledge of the meaning of the 'highwayman', the group continued to work on the worksheet for some five minutes before the task item was once again revisited. This time, the teacher is going round the classroom and passes near the group, thereby making herself available for dyadic talk such as possible requests for help.

Extract 77. Asking for teacher's help

01 TEACHER FINISHES TALK WITH ADJACENT GROUP
 02 Esteri GLANCES AT THE APPROACHING TEACHER
 03 °[Teacher's name]° (.)
 04 -> °I didn't find what the highwaymen (there) (.) were°
 {MOVES HER COURSE TEXT & WORKSHEET CLOSER TO TEACHER
 {LEANS OVER, LOOKING AT THE TEXT
 05 T oka:y
 06 Esteri -> °like I know it's here but I don't get it°
 {TURNS PAGE AND DELINEATES AN AREA WITH FINGER



07 T (o;kay)
 {PICKS UP THE TEXT & MOVES IT IN FRONT OF HER
 °where's the°
 08 BEGINS TO EXAMINE THE TEXT
 09 °mmh°
 10 (2.1)
 11 Sylvi [did you find the highway men
 12 Alma [°<mm::: that's somewhere here°
 13 T no:: not yet
 14 Sylvi {SHAKES HEAD
 15 (0.9)

- 16 T no that's- °that's° (.)
 {TURNS THE PAGE}
- 17 -> °where- where does it (tell that)°
- 18 Alma -> [there's here
 {SHOWS HER TEXT TO TEACHER}
- 19 Esteri -> [°it says there highway(men xxx)°
 {POINTS AT HER TEXT IN FRONT OF THE TEACHER}
- 
- 20 (2.5)
- 21 T °okay, (1.1) a::nd, (2.0) okay that's° (1.1)
- 22 -> °you can write it- (.)
- 23 -> it's actually (.) the <thieves>. (.)
- 24 -> one who came (.) (err err)
 {SHIFTS GAZE FROM TEXT TO ESTERI}
- 25 -> when you were (.) traveling you could be- (.)
- 26 -> ha- (.) attacked by (.) thieves and ro- uh robbers°
- 27 Esteri °ok[ay°
 {NODS}
- 28 T [(on the road) it's that one
- 29 Esteri °okay=°
- 30 T °=if you can't find it you just write (it here)°
 {STEPS BACK FROM THE GROUP}

At line 3, Esteri summons the teacher for one-to-one talk and follows that at line 4 with a request to help 'find' the highwaymen. At the same time, she makes relevant the object in which they should be 'found' (i.e. the course text). Notice how Esteri, however, upgrades her claims to being able to find the relevant knowledge, as she identifies a more specific part of the text which deals with that particular information and displays it to the teacher (line 6, see image). Through this action, she recalibrates her position as someone who 'knows' *where* the relevant information is located but does not quite 'get' *how* it explains the meaning of the word.

As the teacher begins to examine Esteri's course text from line 7 onwards, she aligns to responding to Esteri's first formulation of the knowledge gap as a problem of *finding* the exact bit of text that would explain the word's meaning rather than treating this as a task that requires somewhat global reading strategies of inferring a meaning on the basis of the comic strip (for an analysis of how teachers tailor their explanations to students' problems, see Koole, 2012). At any point after line 7, there would be ample opportunities for the teacher to ask Esteri (and her group members) what they think highwayman means based on the illustrations, but instead the teacher orients to the problem as having to do with locating the said information on the course book page shown by Esteri. Keeping her gaze on the text, the teacher's turns at lines 8, 10, 13 and 16 are not addressed to any one of the students but are instead (treated as) self-talk that nevertheless makes her search activity available for the student group. Note

how this search may also motivate Alma's checking of whether Sylvi has managed to 'find' highwaymen at line 12.⁷⁹

As the teacher's search activity prolongs, her softly spoken turn at line 17 ('where does it tell that') is taken by Alma as a genuine information request to which a provision of whatever information one may have is in order, as opposed to a regular 'teacher question' that assumes and retrospectively asserts epistemic primacy over the answer (cf. Heritage, 2012a, p. 20). Keeping in mind that the teacher's previous self-talk utterances (lines 8, 10, 13, 16) have made clear that she has not yet found the correct bit of text, it all begs the question why Alma and Esteri wait this long to provide the location, albeit that the teacher's turn at line 17 is the first occasion of her employing canonical grammatical resources, a *wh*-interrogative, for mobilising a response (see Stivers & Rossano, 2010a). One possibility is that the further the activity prolongs as unresolved (i.e. the teacher does not find the right spot), the more evident it becomes that Esteri and Alma are more informed than the teacher as regards where 'highwaymen' is located, a state of affairs that indeed allows line 17 to be heard and interpreted as a 'genuine' question. Moreover, at line 16, just before the turn that is taken as an information request, the teacher also turns the page over, thus ending on a different page from the one shown to her by Esteri at line 6. This provides yet further proof to the students of her not knowing the correct location, at least not off the top of her head.

Following the demonstrations by Alma and Esteri of the location at lines 18-19, the teacher's 'okay' in sequentially 'third' position – and her other talk at line 21 during her still continuing search – confirm to the two girls that they had indeed correctly interpreted her question as an information request given from a K-epistemic position. Unlike the third turns of IRE sequences, line 21 is provided as delayed, and instead of assessing the correctness of the student answer, rather signals that the search for the bit of text that would provide a definition of 'highwayman' is still on-going. This is accomplished through tokens of acknowledgement ('okay') that pierce a silence.

In the end, the teacher resolves the problem caused by the indirect nature of the definition of 'highwayman' given in the course text by bypassing the text and resolving the knowledge gap by drawing on her epistemic authority in the classroom and the right to define 'correct answers' that follows from such authority. Not only is her answer at lines 22-26, 'thieves' and 'robbers', not mentioned in the course text (see p. 244), but it is also marked as such through the teacher's visible disengagement from, even a renouncing of, the course text while she constructs her explanation. Moreover, this reliance on personal reservoirs of knowledge is indexed in the verbalisation of the advice as prefaced by a

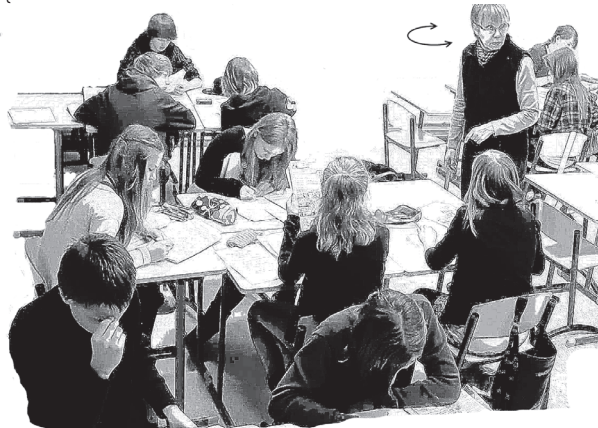
⁷⁹ Here, the teacher's conduct is visually and audibly available to other group members, and as can be seen in the transcript image (Tuuli) and in Alma's provision of the location where the 'highwayman' is explained at line 18, the students do monitor the activity at the same time as they are doing their tasks. Moreover, by tying the format of her request at line 12 to the one presented earlier by Esteri at line 4, Alma constructs the sequence between her and Sylvi as an 'outshoot' of the activity between Esteri and the teacher.

directive ('you can write it'), and involving the provision of the correct answer as one that is 'actually' so (lines 22-23). By doing so, she treats the knowledge gap as something that is in effect not readily available to just *anybody* who closely examines the information presented in the course text. Both turn-design features laminate the provided information as a) re-claiming the K+ epistemic status on the meaning of the highwayman after the previous sequence where knowledge on the *location* of the definition of the highwayman in the text was treated differently, and b) being drawn from situation-external funds of knowledge. Notice how, to wrap up the word explanation, the teacher once again treats such an understanding of highwaymen as 'thieves' as one that may be difficult to obtain from the course book by framing her just-prior explanation as knowledge that can be used if Esteri is not able to 'find' the answer in the text (line 30).

Extract 77 illustrates how students may mobilise the teacher's help for task-accomplishment. Such advice-seeking sequences are important pedagogic indicators insofar as they provide opportunities for the teacher to gauge students' progress and identify possible problems related to the accomplishment of specific task items. An available inference from a knowledge gap discovered by an individual student is that it may be something that is relevant for other students too, that it may require instruction. This is what happened immediately after the teacher had provided a definition of 'highwayman' to Esteri (see also Extract 3 for a similar trajectory). We pick up the course of events at line 30, just when the teacher is disengaging from interaction with Esteri's group.

Extract 78. Making highwaymen into a learning object

30 T °=if you can't find it you just write (it here)°
 {STEPS BACK FROM THE GROUP
 31 -> hey if a- anyone else about these highway (.) m:en
 32 -> has anyone found it
 {GAZE 'SWEEPS' THE CLASSROOM FROM LEFT TO RIGHT



33 Mauri RAISES HAND
 34 T °yah° okay [Mau(ri)]
 {POINTS AT MAURI
 35 Mauri -> [err (.) they were thieves

36 T -> yeah. (.)
 37 -> they were thieves attacking you on the road
 38 a ↑bit like in ↑Sweden nowadays
 39 are you aware that if you travel highway (.)
 40 <th::ree> is it or four (.)
 41 from Stockholm to Goteborg (.)
 42 a:nd if you stay overnight somewhere in:: >the< (.)
 43 by the lakes there (.) you can be attacked by (0.7)
 44 thieves and- or robbers and (0.8)
 45 they s- they take your money and everything else
 46 (1.5)

In the extract, the teacher momentarily suspends the students' independent seat work in order to bring the just-produced knowledge regarding 'highwayman' from the private group talk to the attention of the whole class and thereby manage information transfer between different classroom 'floors'. This involves a change in the participation framework (Goffman, 1981, pp. 124-159), which she achieves by moving away from the group (line 30) and, stepping up the volume, using an attention-seeker ('hey') to preface a turn that initiates an IRE sequence on the highwaymen. Note that the addition of 'else' in the address term excludes the group shown in Extract 77 whom the teacher has just helped out, which the students also orient to by withholding any bids to answer (e.g. through hand-raising), although they now are in possession of the answer.

As the teacher delivers her question about whether anyone has 'found' 'highwayman' (orienting to the text as a possible source of knowledge) at line 32, she 'torques' her body (see Schegloff, 1998) and allows her gaze to sweep across the classroom to monitor student responses (i.e. bids) to this initiation move. The only student to bid is Mauri (line 33), who, following his being nominated to provide an answer (line 34), defines highwaymen ('they') as 'thieves' at line 35. Returning to the usual business of pedagogic questions, the teacher then first positively assesses the answer using a turn-initial acceptance token 'yeah', before qualifying it by offering a more specific account of their modus operandi (attacking 'on the road'). This answer - lines 36-37 - essentially echoes turn-constructural items from the teacher's previous explanation to Esteri's group, shown in Extract 77 (lines 24-26, 28).

In further elaboration of the meaning of the highwayman, the teacher tells a story (lines 38-45) that compares Stuart time highwaymen to modern day muggings along highways in Sweden. Through these elaborations, the teacher is able to verbalise - and add on to - the visual information of the comic strip in the course text. Moreover, the three-turn instructional sequence (IRE) is employed by the teacher to co-ordinate the inherent asynchrony in students' task-accomplishment by targeting a task item that is relevant and potentially problematic to all students, on the basis of one student's request for help. Whilst Mauri's answer, that highwaymen were 'thieves', might in some contexts constitute an adequate meaning for the word, the teacher's subsequent conduct makes it evident that a sufficient understanding of the word's meaning includes quite a bit more, even if it is not immediately clear from the comic strip (and precisely *because* of that). It is this indirectness of an adequate understanding of

'highwayman' in the course material – which the teacher herself noticed to be a laborious task – that motivates its making into a learning object through the initiation of an IRE sequence.

A classroom in which students are physically organised into groups offers them the possibility to construct participation frameworks (Goffman, 1981, pp. 124–159) that draw on different participation roles and construct activities that involve different classroom floors. A general example of this is student 'byplay' (Goffman, 1981, pp. 133–134), and more specifically, when students repair understanding of teacher talk through a practice of 'other-selecting' (see Bolden, 2011) their peers during whole-class talk. Such a practice is also employed by Sylvi, who requests clarification to the meaning of 'highwayman' from Alma, at a moment when the teacher's explanation is coming to a conclusion, in direct continuation of Extract 78.

Extract 79. Clarifying teacher's explanation

47		T	<u>this doesn't mean</u>
48			that every time you
49			go there but uh
50			people are warned not
51	Sylvi	->	to stay overnight °in,°
52	Alma		err when traveling
53	Sylvi		into that
54	Alma	->	area of Sweden
55		->	
56	Sylvi	mmm	
		{BEGINS TO WRITE	
57			they were same type
58			of thieves. (.)
59			okay you can
60	Sylvi	->	write it there.
61	Alma	->	
62	Sylvi		

At line 47, following a pause in her telling (see the end of previous extract), the teacher begins to mitigate the implications of her previous telling of highway robberies in modern day Sweden. The very prefacing of the continuation of her extended turn ('this doesn't mean') indicates that the bulk of the definition of 'highwayman', i.e. 'this', has already been provided, and the talk to follow is projected to fine-tune the limits of the 'meaning' of that definition. This therefore represents a sequential location in which following teacher talk is not as consequential as perhaps in e.g. just prior to beginning a task. Indeed, shortly afterwards at line 51, Sylvi turns to Alma and indicates uncertainty of what exactly has been established as the meaning of highwaymen in the previous IRE sequence, and what thus constitutes the task answer. Notice the temporalities in Sylvi's request, a variation of the 'What is X' format: the simple past tense in the

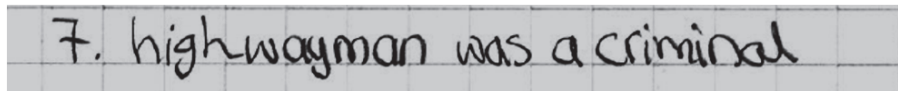
request does not appear to refer to the time at which the course text locates highwaymen (the Stuart period) but the just-prior teacher's explanation, referred to as 'se' ('it') by Sylvi. The use of the discourse particle 'nyt' ('now') creates a somewhat insisting tone and convey that 'it' is a topic over which the requester claims some degree of knowledge (cf. Hakulinen & Saari, 1995, p. 493; see also Siitonen, Wahlberg & Karjalainen, 2013).

Following repair (lines 52-53), Alma obliges to Sylvi's request and, by reading aloud her task answer at lines 54-55 as opposed to telling what highwaymen were, she indeed treats Sylvi's request as having pursued what exactly was ratified as the correct answer. When further prompted by Sylvi (line 60), Alma increments her answer at line 61. Both her responses recycle elements from the teacher's previous turns in two different events, both when talking to the group and addressing the whole class. Her answer ('Thieves who could attack you') has the same modality and the verb as teacher's utterance 'you could be attacked by thieves' (Extract 77, lines 25-26). Moreover, Alma's prompted add-on 'take your money' is a verbatim repeat of a TCU in the teacher's account to whole class (Extract 78, line 45). These answers concerning the meaning of 'highwayman' are accepted as unproblematic, correct answers by Sylvi.

5.5.4 Interactional explanations as resources for subsequent task work

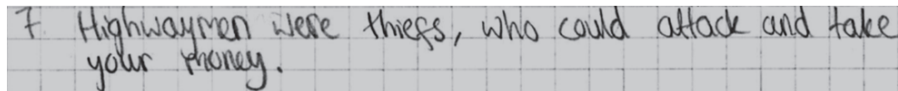
When the written task answers obtained in Esteri's group to the task item ("Travelling was difficult because of highwaymen. What was a highwayman?") are compared (see Figure 12 below), among the first things what can be observed is their striking similarity, apart from Tuuli's answer (note that she did not in fact take part in the conversations in extracts 77-79).

Tuuli:



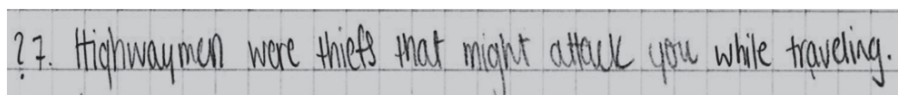
7. highwayman was a criminal

Sylvi:



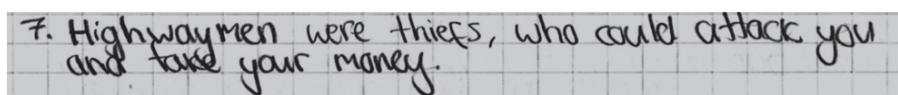
7. Highwaymen were thieves, who could attack and take your money.

Esteri:



?7. Highwaymen were thieves that might attack you while traveling.

Alma:



7. Highwaymen were thieves, who could attack you and take your money.

Figure 12. Esteri's group's task answers

26		(1.5)	
27	Matti	robbed ↑mitä	
		robbed ↑what	
28	Jouni	<stagecoaches>	
29		((20 SECONDS OF SILENT TASK WORK))	
30			T are you aware that if you
31			travel highway (.) <th::ree>
32			is it or four (.)
33			from Stockholm to Goteborg
34			a:nd if you stay overnight
35	Jouni	-> se on se (niinku)	somewhere
		it is that (like)	
36		-> mää sanoin	in:: >the< (.)
		I said	
37			by the lakes there (.)
38			you can be attacked by (0.7)
39			thieves and- or robbers

As Konsta, a member of another group at the opposite side of the classroom reads aloud the question about the highwaymen on the worksheet (line 1, see also Extract 47), it is overheard by Matti, who shortly requests this information from his group members at line 3. Note how the topic of the overheard turn is referred to as 'it' ('se'), a turn-design similar to Sylvi's request to clarify the teacher's explanation in Extract 79. 'It' inextricably links the request to the just-prior turn, expecting the recipients to have heard it and understood its relevance in order to make sense of the request. As is clear from the way Paavali's subsequent claim of insufficient knowledge (lines 4-5) and Jouni's hedging knowledge display equating highwaymen to some kind of 'robbers' (line 7) are SPP actions fitted to such a FPP request, both recipients had indeed overheard Konsta's turn. Prompted by Paavali's open class repair-initiator (Drew, 1997), Jouni modifies the syntactic structure of his knowledge display from a polar request to a noun phrase response and adds a description of highwaymen's target ('carriages'), a state of affairs illustrated in the comic strip (see Figure 11).

Even if Matti, the requester, provides an agreement token (line 8) latching on to Jouni's first knowledge display, no further response tokens are provided after the clarification at lines 12-13. Instead, after a few seconds, Matti suggests that Jouni go and ask Mauri, a student in Konsta's group. This action, which implies that the status of Jouni's interpretation is at the very least left inconclusive, is treated as a somewhat jokey request, as Jouni provides what appears to be a 'no' ('ei') pronounced with a marked outbreath. The joke is in the differential knowledgeability across the group members and the degree to which one student can be held responsible for others' task work. Of all the three members in the group, Jouni has displayed most knowledge regarding highwaymen, and this would make his going to ask for external advice for the benefit of the others as excessively accommodating. By singling out Mauri as a possibly knowledgeable person, Matti uses his assumed epistemic access in constructing the joke.⁸¹

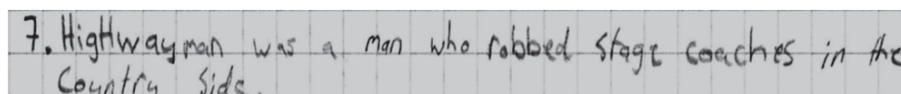
⁸¹ And, as indicated by how the meaning of highwayman was later resolved in whole-class talk, described in Extract 78, as well as his knowledge display on the role of 'rats' for the plague (Extract 65), there perhaps is 'no smoke without fire' as regards Mauri's presumed knowledgeability concerning the course topic.

As Paavali returns to the topic to check the meaning of ‘highwaymen’ some minutes later, he uses his gaze to direct the information request to Jouni (lines 20-21), who in the previous sequence has come out as knowledgeable regarding the topic. Moreover, Jouni, who at the time of the request is writing in his worksheet and thus does not have visual contact with Paavali, still treats himself as the addressee, stops writing and provides another hedging, yet a K+ positioned response at lines 24-25. The answer, which is essentially an English-language translation of his prior response at lines 11-12, is formulated as a personal task answer as opposed to a no-trouble noun phrase response (Fox & Thompson, 2010), indexing less than full certainty over the correctness of the answer. Notice also how the word ‘stagecoaches’, which Jouni employs here as an English-language translation of ‘vaunuja’ (~carriages) and which becomes repaired over lines 27-28, is available in the insert of the comic strip (see Figure 10), which contains the sentence ‘Stage-coach journeys had begun.’ Thus, what Jouni reports as his answer draws on an understanding of what activity (i.e. ‘robbing’) is going on in the comic strip as well as the means of transport that has been provided (‘stagecoaches’) as the context for that activity.

Shortly after this sequence, the teacher begins the whole-class IRE sequence. As she has defined highwaymen as ‘thieves attacking you on the road’ and is reporting the parallel between Stuart period and modern day highway muggings in Sweden (see Extract 78 for the complete sequence), Jouni makes relevant to Paavali and Matti his previous knowledge displays given in the group (lines 35-36). Similarly to Esteri in Extract 80, Jouni treats the whole-class IRE sequence as having retrospectively ratified the correctness of his earlier stance by claiming that the answer (‘it’) is like he ‘said’. And similarly to Extract 80, this insistence on having known all along is produced after knowledge displays that were marked as tentative and received with less than full acceptance.

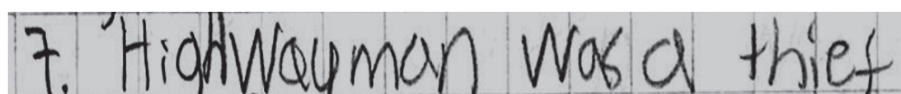
Looking at the completed task answers by Jouni’s group (Figure 13), we can notice how Paavali’s answer is strikingly similar to the answer provided to his request in Extract 81 (line 25), which itself is a slightly contracted of Jouni’s task answer. Matti, on the other hand, appears to base his answer on the understanding established later in the IRE sequence that a highwayman was a ‘thief’.

Jouni:



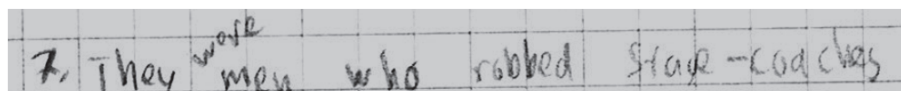
7. Highwayman was a man who robbed stage coaches in the Country Side.

Matti:



7. Highwayman was a thief

Paavali:

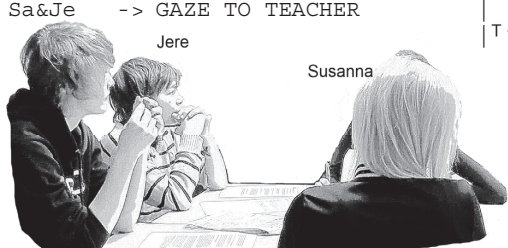
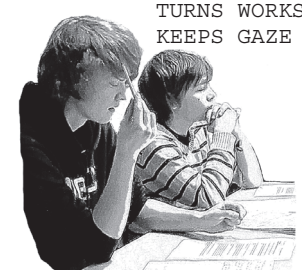


7. They ^{were} men who robbed stage-coaches

Figure 13. Jouni's group's task answers

In principle, anything uttered or done in the classroom can be re-oriented to later in the interaction. Students can be held accountable for having displayed epistemic access, primacy and stance regarding some knowledge objects, as well as for not having accepted information provided to them. Due to reasons of audibility, these kinds of flows of information more easily take place from whole-class talk to group talk between students (although talk in other groups may also be 'overheard', as exemplified by Extract 81). Extracts 80 and 81 illustrate how, in the course of constructing interactional projects (Schegloff, 2007) that target specific knowledge gaps, teacher involvement has a knowledge-ratifying character. It enables students to retrospectively consolidate 'weak' and tenuous knowledge into certainty. Besides ratifying previously contested or uncertain knowledge objects, teacher-initiated knowledge display sequences are also produced for and followed by students who have not yet begun to solve the specific task item. Directing advice to the whole cohort offers a way for the teacher to manage the asynchronous nature of independent seat work, i.e. that students are completing tasks at their own pace, and in the case of a difficult task would be inclined to ask for advice individually one after the other. However, when the teacher addresses some problem in whole-class talk, such as the highwayman, ensuing knowledge displays can be expected to be followed and examined for relevance at a later point, as shown in the next extract.

Extract 82. Registering teacher's explanation for future reference

<p>01 Susanna eiku- (.) no I mean (.)</p> <p>02</p> <p>03 Sa&Je -> GAZE TO TEACHER</p> <p>04</p>	<p>Jere</p> <p>Susanna</p>	<p>T hey if a- anyone else about</p> <p>these highway (.) m:en</p> <p>T → has anyone found it</p>
		
<p>05 Sakari -> GAZE TO WORKSHEET</p> <p>06</p> <p>07</p> <p>08</p> <p>09</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p>	<p>Sakari</p> <p>Inka</p> <p>Ma RAISES HAND</p> <p>T °yah° okay Mau(ri)</p> <p>Ma err (.)they were thieves</p> <p>T yeah. (.) they were thieves</p> <p>attacking you on the road</p> <p>a ↑bit like in ↑Sweden</p> <p>nowadays</p> <p>are you aware that if you</p> <p>travel highway (.) <th::ree></p>	<p>Ma RAISES HAND</p> <p>T °yah° okay Mau(ri)</p> <p>Ma err (.)they were thieves</p> <p>T yeah. (.) they were thieves</p> <p>attacking you on the road</p> <p>a ↑bit like in ↑Sweden</p> <p>nowadays</p> <p>are you aware that if you</p> <p>travel highway (.) <th::ree></p>
		

- 14 -> GAZE TO TEACHER | is it or four (.)
 15 ((9 LINES OF TEACHER EXPLANATION OMITTED))
 24 | this doesn't mean
 25 | that every time you go there
 26 Sakari WAVES HIS PEN | but uh people are warned
 27 | not to stay overnight °in,°
 28 Sakari -> Jere o (.) | uh when traveling into that
 | Jere is (.)
 | highway (.) <highway>men | area of Sweden
 29 | (1.0)
 30 | °mmh°
 31 Jere |
 32 ((C. 4 MINUTES OF GROUP INTERACTION REMOVED))
- 33 Sakari seittemä,
 seven,
 34 TURNS OVER THE TASK SHEET
 35 (1.3)
- 36 Inka mää etin sitä [ku (.) se-
 I was looking for it when it-
 37 Sakari -> [°what wa-° ((MOUTHS THE WORDS))
 38 -> [↑aa what was the highway (mies) mää tiiän sen nyt
 ↑oh what was the highway (man) I know it now
 {POINTS & THEN TAPS THE PAPER TWICE WITH INDEX FINGER
 39 Inka [traveling was difficult (.) what was a (.)
 40 highway man (.) it was a (.) <thief> (1.8) that,
 {SAKARI BEGINS TO WRITE



As the teacher uses the attention-seeker 'hey' and initiates the IRE sequence shown in Extract 78, on-going talk in the focal group is suspended as the students shift their attention to the teacher. Susanna cuts off what is still grammatically and pragmatically an incomplete turn at line 2; Sakari stops the balancing of his pencil and, together with Jere, shifts his gaze towards the teacher (line 3, see also image). Moreover, all group members withhold from taking a turn. This renouncing of an on-going activity embodies an orientation to whole-class talk as the primary mode of interaction in the classroom within which group talk should be fitted (cf. Koole, 2007).

Positioning himself as a listener of the IRE sequence, Sakari co-ordinates his attention between the teacher (lines 3, 14) and the task sheet (lines 5, 8), which he orients to as soon as the teacher's initiation move displaying the cause for the interruption as 'these highwaymen' has come to completion. Thus, Sakari treats the incipient sequence as being relevant for the questions in the task sheet. As the teacher has indicated that her elaboration of Mauri's answer is coming to a conclusion ('this doesn't mean that...'), Sakari engages with the just-established meaning of 'highwaymen' by (jokingly) applying that category, which has just been negatively described, to the student seated next to him.⁸²

⁸² Notice the nearly identical timing of the turns by Sakari in this extract and the clarification request by Sylvi in Extract 79 in reference to the teacher's turn, suggesting

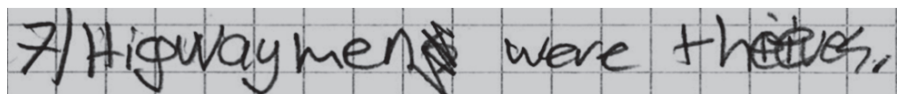
After approximately four minutes of subsequent task work (not shown in the extract), the group, who have been co-ordinating their task-accomplishment through talk, reach the question about the meaning of the highwayman. At line 33, this move is verbally announced by Sakari, who declares the number of the question ('seven'), at the same time turning over his worksheet. As was pointed out in conjunction with Extract 48 (which showed the complete sequence), Sakari's quick self-repair from silently mouthing the question to a change-of-state token ('aa') prefaced reading claims that something substantial enough to warrant a readjustment of his action has 'just now' been noticed (see also Bolden, 2006; Heritage, 1984a; Koivisto, 2014; Lehtimaja, 2012, pp. 118–121; Schegloff, 2007, p. 118). As the rest of the repair turn makes clear, the nature of this modification is profoundly epistemic: rather than simply repairing the level of volume of his reading aloud, Sakari immediately adds a claim to knowing the answer to the particular task item. Significantly – and similarly to previous extracts showing students after the teacher's explanation of 'highwayman' – this claim attends to the temporal contingencies of knowing, quite literally asserting that his epistemic state has gone from 'non-knowing' to 'now-knowing' (Schegloff, 2007, pp. 118–119). Inka, the other student in the group to verbally show her task-accomplishment to the others, also reads aloud the task item and follows it with a knowledge display (lines 39–40) whereby she defines highwaymen as 'thieves'. As mentioned, this is the exact word used in the earlier IRE sequence illustrated in Extract 78. The immediacy and the formatting of Inka's knowledge display following her read-aloud suggests that it is not designed to offer a personal interpretation of the comic strip but rather a piece of information whose status as publicly ratified knowledge has already been established. As the course of events following this – Jere's looking over Sakari's shoulder being treated as a request for task answer (shown in Extract 48) – illustrates, such claims to being a knowledgeable student can indeed be examined as events that motivate further interactional sequences even if they have not necessarily been designed as social but rather individual actions.

All in all, the sequence in which Sakari and Inka eventually begin to answer the question about highwaymen is a fairly mundane example of how tasks are answered in the classroom. What a temporally sensitive analysis can unveil is how the practical accomplishment of answers may have an interactional history which the pupils draw on and orient to when they display their epistemic positions, construct their answers and conduct various social actions that relate to such positionings. Thus, following what happens in whole-class talk and co-ordinating that with the task (Sakari's monitoring of his worksheet) may provide resources which can later be deployed – and which the students may be expected by the teacher to deploy – for the benefit of future task work. Such

there may well be systematic sequential locations of whole-class talk at which group talk frequently and unproblematically occurs. A systematic investigation of such a phenomenon as well as the differences in sequential locations that are heard as 'disruptive' is beyond the scope of this study, but might offer important insights into the sequential foundations of 'off-task' and 'on-task' talk.

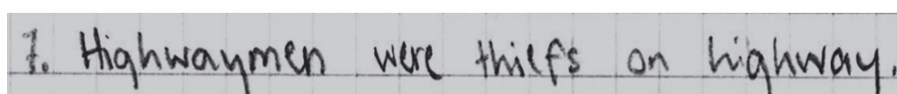
reliance on interactional events as resources for task work can also be seen in the answers in Sakari's group, shown in Figure 14 below.

Sakari:



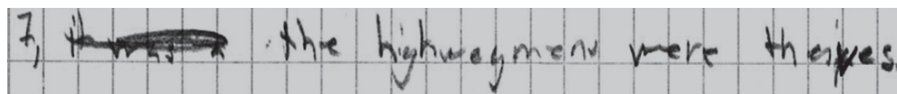
7/ Highwaymen were thieves.

Inka:



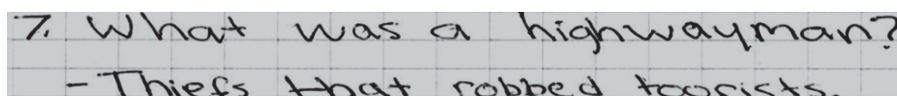
7. Highwaymen were thieves on highway.

Jere:



7, ~~Highwaymen~~ the highwaymen were thieves.

Susanna:



7. What was a highwayman?
- Thiefs that robbed tourists.

Figure 14. Sakari's group's task answers

As can be seen, all task answers define highwaymen as thieves, whether spelt 'thiefs', 'theives', or possibly according to the standard orthography (Sakari). Moreover, Susanna's answer ('tourists') seems additionally to draw on a part of the teacher's previous explanation in which she compared the Stuart-time stagecoach robbers to modern-day highway muggers in Sweden. The differences in spelling of 'thieves' relate to interactions occurring after Extract 82 (not shown here) whereby Sakari's unclear handwriting after he had revised his answer from 'theives' to 'thieves' (in Extract 48) occasioned some time later a further knowledge gap on the spelling of the word between Inka, Sakari and Susanna. That led to two different spellings being offered, 'thiefs' by Susanna and 'thieves' by Sakari, whose subsequent backing down paved way for Inka's acceptance of Susanna's version of the spelling as correct.

5.5.5 Summary: knowledge construction within and across student groups

The extracts shown in the previous sections have aimed to shed light on interactional complexities that may be related to the accomplishment of tasks in the classroom, even in situations that are pedagogically designed as 'independent' desk work. Sometimes the outcomes of such tasks cannot be sufficiently accounted for by task properties and the proficiencies and skills that individual students bring to their work. Rather, aspects of the social organisation of talk and knowledge in the classroom have bearing on task-accomplishment in the classroom. These aspects include the nature of classrooms as sites of multi-party talk involving complex configurations of participation within and across differ-

ent ‘floors’; the availability of other students as (supportive) recipients whom to address knowledge gaps that arise in independent work; and the existence of a shared, teacher-assigned focus in terms of joint tasks, exercises, etc., which allows students to monitor any (whole-class) talk as being possibly relevant for that focus. They also provide a common frame of reference for interpreting events in the classroom and enable knowledge and ‘correct answers’ to ‘flow’ and be constructed across different student groups and participation frameworks. This is illustrated in Figure 15 (p. 267), which maps chronologically instances of whole-class and group talk in which the meaning of the word ‘highwayman’ was addressed in the classroom.

The figure shows that out of the five student groups in the classroom, ‘highwayman’ first emerged in Esteri’s group about 30 minutes into the lesson, corresponding to Extract 75. The group resumed their talk on the topic at around the 37 minute mark (Extract 76), shortly after which ‘highwayman’ was worked on in Mauri’s group (Extract 47, in chapter 4) and, overhearing this talk, in Jouni’s group (Extract 81).

Following Esteri’s request for help with the task (Extract 77), the teacher brought the topic into whole-class talk by initiating an IRE sequence (Extract 78) to solicit the students’ understanding of the word, adding to it a story of modern-day highwaymen. During periods of task work, whole-class sequences which address possibly problematic task items, such as the meaning of highwayman, make the problems encountered by individual students and the solutions to these problems (i.e. correct answers) available to everyone in the class. And they may indeed be oriented to by students as sequences preoccupied with such concerns, as is evident in the way the whole-class IRE sequence was later treated as having retrospectively ratified earlier produced candidate understandings of the word (extracts 80 and 81), as well as having brought about new knowledge (Extract 82, see also Extract 32 in chapter 4).

These observations on students’ orientation to links between speech events across time demonstrate the rich interactional history that may go into what appears as fairly mundane task-accomplishment. Although each of the data extracts are telling examples of the interactional management of knowledge in a bilingual classroom, identifying sequences in which speakers orient to the same topic (see e.g. Melander & Sahlström, 2009; Sahlström, 2011) and looking at them together allows a more insightful grasp of participants’ perspective on the project of coming up with a meaning for the word highwayman. Analysing epistemic positioning regarding ‘highwayman’ demonstrates that knowing and knowledge do not suddenly emerge out of the blue, but may be constructed over several separate speech events. Nevertheless, these previous attempts and epistemic positions are oriented to by the students in subsequent interactions as they indeed create topically connected interactional trajectories in the classroom. By creating coherence, they display learning.

In classrooms, learning trajectories are not only individual, as classrooms are contexts that have multiple ‘floors’ or ‘speech-exchange systems’ (e.g. Jones & Thornborrow, 2004; Koole, 2007; Lehtimaja, 2012; Markee, 2005), which

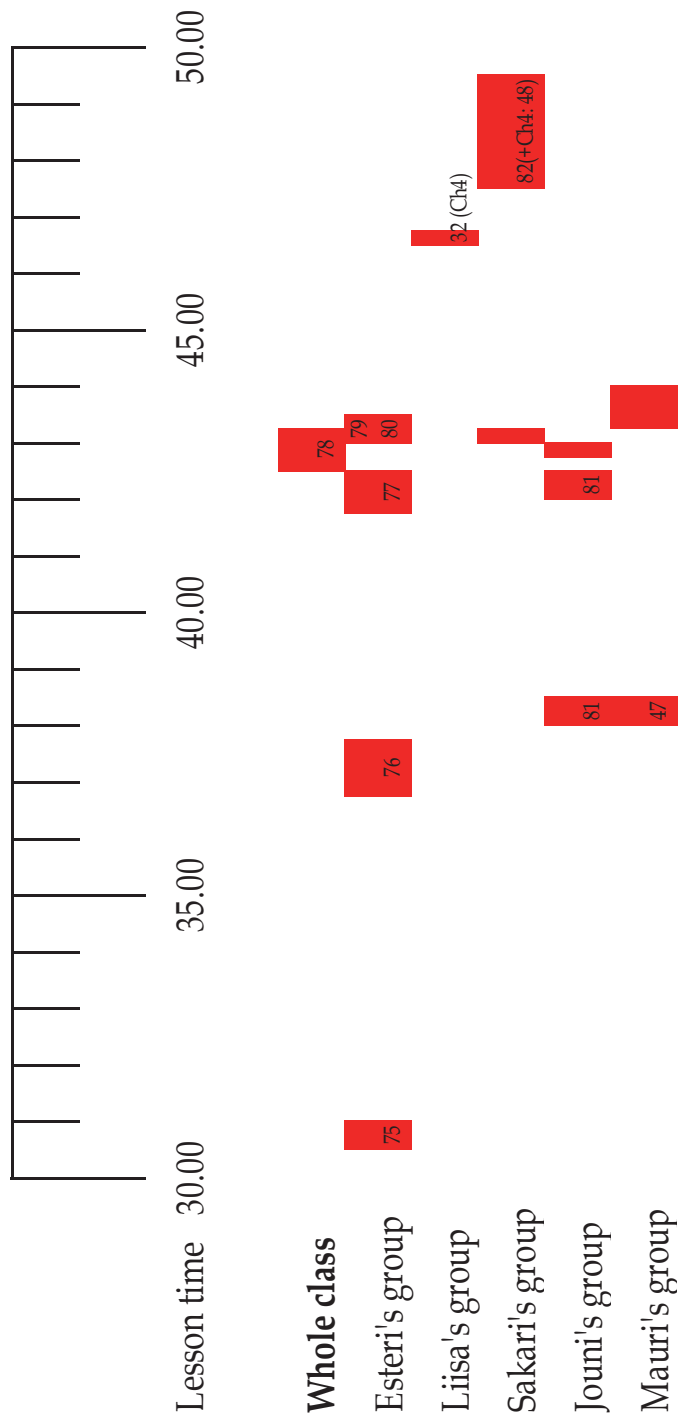


Figure 15. Timeline of interactions (and corresponding data extracts) for constructing the meaning of 'highwayman'

display at least some degree of inter-connectedness. The data extracts presented here demonstrate how the completion of a task on 'highwayman' was made possible by 'flows' of information between student groups, achieved mainly by the teacher's treatment of a problem that was flagged up by an individual student as potentially relevant for all students. It is precisely this feature of the classroom environment – that in the same physical space there are 25 to 30 speakers, one of whom especially works to mediate talk between the others and co-ordinate (and converge) knowledge states – which makes classroom learning different from most learning-oriented everyday conversations, or for that matter, computer-mediated teaching.

5.6 Summary

This chapter has analysed learning in content-focused classrooms as a profoundly epistemic practice (cf. Knorr Cetina, 2001, pp. 184–185) by probing the linkages between the student-initiated treatment of knowledge gaps in the classroom and learning. It has been argued that learning is (also) something that people visibly and publicly 'do' (cf. Sahlström, 2011) involves an orientation to a change of epistemic status, for the production of which indications of knowledge gaps routinely orient to. By indicating lack of knowledge, a student can gain access to resources that help her to accomplish an on-going pedagogic task. The provision of such resources, in the form of a knowledgeable response which is accepted by the requester, allows the requester to adequately and sufficiently complete the task (or the particular part being worked on), which in itself is *prima facie* evidence of learning as a locally produced change of epistemic status: a requester initially positions herself as 'unknowing' towards some knowledge object, which following its provision, becomes treated as a 'known' object not only through its acceptance but by being *used* for a purpose such as answering or understanding a task, teacher's instruction, and so on. However, although the ability to perform a task is immediate evidence of learning 'here and now', data that relies on naturally-occurring interactions rarely offers interactional evidence that the speaker receiving some knowledge could later apply that knowledge in a similar context for the construction of similar participation or action. In other words, the *stability* of the change which the participants have brought about for a specific purpose remains an open issue, one which may be difficult to answer solely by means of a CA(-SLA) methodology. This in itself, however, does not mean that knowledge gap sequences would not represent 'learning' to students.

Besides such a forward-looking orientation to coming to know a particular knowledge object, students sometimes make relevant prior interactions beyond the immediate sequential environment, as well as their knowledge states involved in, or altered as a result of, those interactions. This way, they observably use (and make it visible to their co-participants too) their previous experiences and interactions to construct further social action. 'Having acquired' knowledge

allows them to take expert positions, build social affiliation by accounting for their knowledge, etc. In some ways, it could be said that such an evidence that spans over longer time periods than individual sequences represents more stable evidence of 'learning', as there has been more time (to possibly forget what was learnt) between some initial point of acquisition and a later event in which the acquired knowledge is employed. While this may be partly the case, such a view seems to consider knowledge as something that nearly 'automatically' carries over from one context to another once it has been obtained. However, there is plenty of 'doing' that goes into the production of each occasion in which knowledge objects are used, beginning with perceiving and making situations similar so that such 'previously obtained' knowledge can be used. This, I argue, is still 'learning': students' drawing on previously occurred speech events themselves display an analysis of the possible relevance of those events for the specific task-at-hand. These actions can therefore be seen as attempts to 'do' learning transfer (see Lobato, 2003, 2006; Marton, 2006) by applying what one has previously heard or acquired (such as a teacher's explanation) in a new interactional context (answering a worksheet), i.e. building similarities between events at different points in time. According to this view, learning transfer is something that has to be (interactionally) constructed, and is already a manifestation of at least short-term learning.

Learning in a classroom is not only built through an orientation to the temporalities of knowing, not knowing and learning, but it also involves managing the affordances and constraints set for the pedagogic activity by the physical context, such as the organisation of desks to form groups of students. As shown by the complex interactional work of the class on establishing the meaning of the word *highwayman*, having a common, institutionally-assigned focus means that problems and knowledge encountered by one student may be treated as bearing a similar relevance to the other students in the cohort. Thus, the affordances for learning (Gibson, 1979; van Lier, 2000, 2002, 2004) are not only constructed by the task and the people in one's immediate vicinity (i.e. group members) but actions that are perceived – be they overheard turns, information requests or teacher's explanations – may be examined as potentially relevant for task-accomplishment. These perceived turns, or public substrates (Goodwin, 2013) may later be re-referred to, or performed some other operation on in order to construct knowledge for the sake of doing learning tasks.

6 CONCLUSION: CONSTRUCTING AND LEARNING CONTENT AND LANGUAGE IN CLIL CLASSROOMS

This study has operated at the crossroads of three distinctive research areas: CA work on epistemics, CA-SLA and research on interaction in CLIL education. Using conversation analytic methods, it has explored student-initiated practices for learning in the language classroom, more specifically how students in a CLIL classroom discover and identify knowledge gaps, initiate interactional sequences to pursue resolution to those gaps, and analysed if and how such work may be conducive to learning. These focal interactional sequences are conducted within the confines of some larger activity, for example, the completion of pedagogic tasks or the listening to of teacher's (task) instructions. The analytical chapters have investigated how these sequences play out, and in doing so, they have identified distinctive interactional tasks which underwrite the resolution of knowledge gaps. For example, students will need to identify and formulate the nature of the gap in sufficient detail for their practical purposes and coordinate the participants' knowledge states in order to resolve it. Depending on the epistemic position taken by the recipient, yet a further task is to establish the correctness of the response, or to recruit a new recipient that may be able to provide knowledge.

This chapter will briefly summarise the main contributions of this study in reference to the aforementioned three research areas. These findings will then be drawn on to address the overarching research question concerning what student-identified knowledge objects and the management of lack of knowledge imply for understanding 'language' and 'content' as well as their integration in learning in CLIL classrooms. Finally, the limitations of the study, possible topics for future research as well as implications to teaching will be briefly considered.

6.1 Knowing and learning in peer interaction

One of the main contributions of this study to research on interactional epistemics has been the description of the social and normative organisation of knowledge in classroom peer interaction, a context that has previously received significantly less scholarly attention than whole-class talk involving the teacher as a speaker with institutionally-assigned epistemic authority. Perhaps the most obvious finding concerning the way student-initiated knowledge gaps are resolved in the data relates to just this asymmetry: an overwhelming majority of knowledge gaps are in fact addressed to *someone*, who most often is a peer and not the teacher. Thus, instead of soliciting missing information from the teacher, students nearly always initiate a sequence with their peer(s), often with those seated in their vicinity. In this regard, the possibility to initiate interactions with peers provides a way for students to solicit missing information as well as check and repair their understanding of where the lesson is going. This is an intriguing finding since, from a purely epistemic point of view, the 'safest bet' for finding a recipient that is likely to have access to task-related information would on most occasions be the teacher, who not only has the institutionally-assigned rights and responsibilities to know the instructional contents, but who may also be expected to have the primary epistemic status to clarify the content of tasks as the person who is in charge of their implementation.

Reasons for the observed tendency for students to resolve lack of knowledge among themselves are likely to be multiple and complex. They are likely to range from affordances created for the maintenance of such a participation framework by the specific configuration of desks and other material objects in the classroom to what implications 'not knowing' may have for the identity category of a student, and the maintenance of lesson progression. The fact that students of the focal classroom were seated in groups of four or five, formed by the positioning of their desks, provides for the possibility to interact with a greater number of 'possible knowers' than in classrooms organised in rows of individual students. It is not so much that tasks that occasion knowledge gaps were designed to be completed as group activities, but that the particular seating arrangement provided the students with means to solicit the help of other students. Not only are peers within a closer auditory range, a factor that enables whispered turns that orient to the primary status of the ongoing whole-class activity to be heard more easily, but they are also more often facing each other than in situations where students are seated in rows. This means that when students are seated in groups, it is significantly easier for them to establish mutual gaze and joint orientation to task-related artefacts and use them to formulate knowledge gaps, even more so when those gaps are not meant to become the focus of whole-class talk.

Another reason that may help explain why so few indications of lack of knowledge are primarily addressed to the teacher relates to the social significance of displaying no knowledge of an aspect of the current pedagogic task. As

has been argued throughout this study, knowledge and knowledge asymmetries have a key role in the institutional activities of content-focused classrooms. Running the risk of oversimplification, a significant part of life in such classrooms involves activities whereby an institutionally-derived 'knower' teaches those who do not yet know their lessons, and whose success is measured against the degree to which they display and reproduce what is being taught to them. Such assessment may rely on students' participation in lessons or their knowledge displays in systematized written tasks and exams. Against this backdrop, being a 'good' student means knowing the curricular contents, and accordingly, not knowing them may be interpreted as a sign of an inattentive student, even if this together with the aforementioned orientation to participants' responsibilities regarding knowledge in education may constitute a somewhat paradoxical situation. Such an orientation manifests itself perhaps most evidently in sequential environments that precede or are simultaneous to whole-class IREs when students initiate sequences to retrieve knowledge that they will immediately need to answer the teacher. Even beyond such contexts, by requesting help from a peer instead of the teacher, a student treats his knowledge gap as at least potentially resolvable by 'anyone' who has been at the receiving end of the instruction and can therefore retrieve what the sequence-initiator may have missed, misunderstood or forgot. However, as has been shown in the analytical chapters, students can be quite adept at monitoring who of their peers are likely to be able to respond to their queries, whether by virtue of their participation to some earlier interactions in the classroom or their perceived knowledgeable ability regarding the subject-matter. This suggests that stable social identities, such as that of a 'clever' student, may emerge as the accumulation of specific, moment-to-moment interactional roles and epistemic positions assumed, cast and defended in those interactions.

Lastly, resolving emergent knowledge gaps among peers can be seen to orient to the progressivity (see e.g. Stivers & Robinson, 2006) of the lesson. By initiating a parallel sequence in the group, a student allows the whole-class main activity (when there is one) to go on uninterrupted. Doing so limits the disruption caused by the help-seeking activity to the work and participation in lesson of group members. This possibility of having one's lack of knowledge addressed in two very different speech-exchange systems of the classroom may also provide a mechanism for grading the problem's magnitude and generality. Seen this way, problems that are addressed to the teacher are heard as representing significant hurdles that are potentially relevant to other students as well. Indeed, such broader relevance of the experience of an individual student for managing the learning of the whole cohort is what teachers orient to when they, having been addressed a knowledge gap by an individual student, follow the resolution of that gap by subsequently making it the concern of all students in the room. If the teacher's job is seen as teaching the students what they do not yet know, then these occasions have very much to do with how teachers assess their students' epistemic status based on some interactional feedback (from individual students). And inasmuch as students appear to prefer to resolve

knowledge gaps without teacher intervention, we have another epistemic paradox: the more such knowledge gaps remain 'hidden' from the teacher, the fewer interactional signals there are for assessing what the students do not yet know and what therefore needs to be taught. Such lack of access to students' problems is a factor that considerably complicates the task of teachers who would like to assess their students' progress with content learning in naturally-occurring classroom situations.

This study has also contributed to research on (language) learning through social interaction by addressing what kinds of interactional practices and phenomena may be interpreted as having to do with learning (Firth & Wagner, 2007; Kasper & Wagner, 2011; see e.g. Lilja, 2010, pp. 282–287; Pekarek Doehler, 2010; Savijärvi, 2011, pp. 218–223). In doing so, it has shed light on the multiplicity of learning objects and domains which learners target in and through social interaction in content-focused classrooms. It has been argued that the interactional management of knowledge involved in resolving knowledge gaps offers students with opportunities for learning, as evidenced in two kinds of temporal orientations in these sequences. Firstly, learning can be seen as the locally-produced resolution of a knowledge gap, which students orient to and quite literally 'do' (cf. Sahlström, 2011) when requesting information that they may need, for example, in order to produce a task answer or respond appropriately to the teacher's instruction or question. When such a forward-looking orientation to becoming to know a specific object that is needed for a specific action leads the requester to adequately and sufficiently complete the task-at-hand by applying the just-retrieved knowledge, it constitutes evidence for local learning in the form of a procedure for knowledge construction. However, there is no guarantee (and for the analyst often scarce interactional evidence too) that such locally-produced knowledge may be applied in a similar way at some later point in time, evidence which is often taken as an indication of the stability or transfer of learning and in traditional SLA research sought through a longitudinal pre-test/post-test design.

On the other hand, the elevation of longitudinal evidence of change in language use as the single defining indicator of learning (both in traditional SLA and CA-SLA frameworks) begs the question when such language or knowledge could relevantly be used in interaction, something which Schegloff (1993, pp. 102–107) has in a different context referred to as 'environments of possible relevant occurrence'. One problem with this type of a view is that speakers do not conduct their daily business in order to provide 'longitudinal evidence' for learning, but that such evidence may often be the analyst's abstraction. This means that not all learning is visible in interaction. Accordingly, some knowledge that gets locally established in interaction may never again be needed in subsequent talk, while in other activities longitudinal changes in mental states may well be a concern for the participants, one that they claim and display for the purposes of that activity. It is in this sense that subsequent occurrences of knowledge objects in talk may be more informative to the analyst with respect to *what relevance* participants themselves treat temporally sepa-

rated interactions to have, as opposed to some second occurrence being a simple manifestation of what someone has learnt at an earlier point in time. Instead, any second or further occurrence may still be very much related to participant practices for 'doing learning' or even resisting a change of knowledge state, concerns which they may make relevant to co-conversants.

Bearing this in mind, there are ways in which participation in (shared) interactional events is routinely invoked and used to construct some further action at some later point in time. This study has argued that such a backward-looking temporal orientation, the making relevant of past events for the purposes of constructing and designing actions here-and-now, also involves and demonstrates learning. In the classroom, learning may thus be intimately tied with the way actions are formed and ascribed (cf. Levinson, 2012), insofar as ways in which interactional turns for resolving knowledge gaps are designed so as to invoke epistemic positions and ways of referring to knowledge objects established in previous interactions. When prior interactions form a background against which action is built at some later point, the maintenance of what is treated and expected as known by parties to interaction - what Heritage (2012a) calls as 'epistemic ticker' - both indexes and is made possible by learning. This type of learning is routinely unseen, as speakers quite aptly 'remember' what membership knowledge they are expected to have in order to maintain a sense of coherence and orderliness, but when they do not do so, there are social mechanisms for retrieving missing knowledge, such as 'reminder' sequences. Conceptualised this way, learning is deeply involved with the domain of recipient design (see e.g. Sacks et al., 1974, p. 727; Sacks & Schegloff, 1979). The findings of this study suggest that it may offer a promising domain for developing CA-based conceptualisations of learning (cf. Hauser, 2011, 2013, pp. 465-467), one that represents largely uncharted territory (but see Firth, 2009; Nguyen, 2011). This implies that participation in the social interaction of a classroom involves processes of learning that target objects and areas other than those knowledge and skills specifically addressed by the instruction.

6.2 A participants' perspective to content and language in CLIL teaching

Content and language integrated learning (CLIL) generally refers to teaching programmes that use a foreign language to teach non-language curricular contents in an attempt to simultaneously teach both content and language, such as history and English in the context of this study. Research on CLIL has revealed the profound complexities involved when these two learning objectives, as well as any other learning objectives such as 'culture' are integrated in teaching (Dalton-Puffer et al., 2014; see e.g. Gajo, 2007). All in all, integration of language and content is a concern for participants and stakeholders at multiple levels in CLIL education. It encompasses questions

such as how learning objectives are set out in institutionally-derived curricula, teachers' lesson plans and materials, how teaching is divided and timetabled into distinct school subjects prior to lessons, and how various interactional practices and participant orientations in the classroom realise those lessons (Nikula, Dalton-Puffer, Llinares & Lorenzo, *in press*). Such a multifaceted nature of integration along with the considerable variation in the implementation of CLIL across different contexts makes it difficult to arrive at any broad generalisations concerning content and language integration. Despite these constraints, the analyses conducted in this study do provide insights into how the notions of 'content' and 'language' figure in and are combined through the student-initiated management of knowledge and learning objects in the praxis of classroom-based CLIL education.

The analytical chapters have shown that the knowledge gaps which students discover, interactionally work on and resolve in the contingency of completing pedagogic tasks cover a broad range of objects and domains. Some may quite easily be conceptualised as having to do with 'language' as an abstract and learner-external entity (cf. Cook, 2010), such as those gaps which target the spelling or the meaning of a word or an expression in the second language, and which are aspects of learning that (CA)-SLA research generally investigates. On the other hand, there are those gaps which appear to concern knowledge related to the school subject of history, such as establishing the facts of a specific historical event, and those which seem to relate to cultural aspects that relate to the target language. What is more, knowledge gaps have an emergent and to some degree unpredictable nature in that they do not follow directly from the way content and language are set out as learning objects in predetermined pedagogic tasks of CLIL teaching (for similar observations, see Seedhouse, 2005). Instead, students may, for example, find themselves to be in need of specific language items when completing a 'content' task. Equally significantly, often very different objects become treated as knowledge gaps across groups of students in a single classroom, even if all of them receive the 'same' instruction by the teacher. Taken together, these observations indicate that student-initiated sequences of knowledge management involve practices through which students can exercise their individual agency over their learning by discovering, defining and pursuing their own 'learnables' (Majlesi & Broth, 2012).

Students' interactional work on such language-related knowledge gaps as spelling, meaning or pronunciation in the course of accomplishing content tasks in CLIL classroom contributes towards their learning of both language and content. When they engage in these kinds of ad hoc negotiations, language and content are integrated in a way that is very different from pedagogies that approach integration as finding a balance between the proportions of instruction or curriculum allocated to 'content' and 'language' (see e.g. Lyster, 2007). Emergent language-related gaps are above all discursively and in terms of the register fitted to the actual needs of a specific pedagogic task, even more so than the language knowledge which teachers may identify as scaffolding or 'key language' and therefore teach prior to task work or what may be embedded in

the design of tasks.⁸³ They are thus examples of how *students* integrate language work to content task, for purposes which they have themselves identified as necessary in order to complete a larger activity, such as some task. It can be argued that lexical knowledge is more meaningful when it is consequential to accomplishing other, content-related work than in situations where words are learnt for some (possible) purpose in the future. This is not to deny the role of explicit teaching of language knowledge in CLIL teaching, but rather to point out that, no matter how extensive such teaching may be, it remains likely that CLIL students will still feel the need to engage in language-related problem solving while constructing meanings for content tasks. Related to this, there may be some things that we only know that we do *not* know when we are put 'on the spot' to do a specific task and have to think about how to do it. A somewhat analogical situation might occur when we, having read a recipe for chicken dinner, begin to cook it. In following the steps of the recipe, we are faced with continuous problem solving concerning how to actually cut a whole chicken into joints, how to know when the meat will be perfectly cooked, when we should start preparing the sauce and so on. Perhaps the less experienced a cook we are, the more unanticipated problems we encounter along the way.

For understanding the multifaceted nature of learning language, content and culture in CLIL, it is important to recognise that despite the variation in the objects of the knowledge gaps, the interactional means that students use to resolve them are strikingly similar. They need to assemble linguistic, embodied, artefactual and sequential resources into distinct activity sequences through which they identify knowledge gaps, find a possible 'knower' and negotiate what they know and do not know about the targeted information. In CA terms, students deploy context-free resources such as turn-taking and adjacency pair to carry out the context-sensitive activities of resolving specific gaps which arise from task work. In doing so, students orient above all to bringing about a resolution to the knowledge gap rather than to making a distinction between gaps that are about 'language' or 'content'. However, participation in such activities also involves 'language', which is very different from the notion of 'language' as the properties of a learner-external system that is often being pursued through these sequences. Instead, this type of 'language' may more aptly be characterised as resources which are used for building social action (cf. Cook, 2010). Thus, at the same time as students are working on emergent learning objects, they are also building up their classroom interactional competence (see Seedhouse & Walsh, 2010) in deploying conversational resources to manage epistemic rights, relations and responsibilities. The fact that such management can be quite complicated and intricate, yet something which is left largely untouched by language teaching pedagogies and the instruction, may also help at least partly explain the relatively frequent observation that CLIL students tend to prefer to use their L1 over the institutionally-assigned target language in peer interaction (see e.g. Dalton-Puffer, 2007, 2011, p. 191). This is something that was also fairly prominent in the data for this study.

⁸³ I am grateful to Dr Tom Morton for making this point.

If we consider the resolution of knowledge gaps through information request - answer adjacency pairs as a widely applicable, i.e. context-free, practice which speakers can use in a variety of settings with some context-sensitive modifications, and see the role of 'language' in CLIL as a notion that is broader than knowledge of linguistic form, the question is how CLIL education may be conducive to learning such pragmatic and academic competences in L2. Previous research, such as that by Nikula (2008), has investigated CLIL lessons as environments for pragmatic learning and found that students do orient to social and interpersonal aspects of communication, even if the linguistic means employed may not always be exactly those that native speakers use. A key mechanism for learning to participate in such conversational practices in a foreign language is surely 'doing' them as opposed to watching how a teacher does them or, reading how they are done in a text book dialogue. This is often also seen as the bonus which CLIL brings in addition to formal language teaching, its warrant. What consequences for language learning, and more generally for the whole CLIL enterprise, might it have if students do not use L2 to negotiate their task work but instead draw on their L1? On the other hand, research from immersion contexts suggests that L1 can offer important resources for participation in shared activities (Savijärvi, 2011), to the degree that a monolingual orientation in the classroom can constrain participants to say what they can instead of what they want (Slotte-Lüttge, 2005, pp. 125-128). Might there sometimes be conflicting interests between achieving aims related to language and content learning? Besides these questions, there is plenty of scope for future research related to the deployment and management of the available languages for accomplishing specific actions and activities in CLIL teaching. Of interest is not only how such actions and activities are sequentially organised but also how social actors index their expectations towards classroom pedagogies by organising them in the way they do. Similarly, this study has only scratched the surface of how interactional practices for resolving knowledge gaps relate to practices, strategies and conventions through which students independently accomplish tasks, something for which future research may find necessary to combine a number of different research methods.

Yet another rewarding area for future research on classroom interaction relates to examining the 'morality' of knowledge in the classroom in a more thorough manner. As previous CA research on epistemics has demonstrated, knowledge in social interaction is in many ways intimately related to who we are to each other and the kinds of social relations we construct with our co-conversants. Seen this way, epistemic practices in the classroom also represent interactional sites for identity work, which may be particularly salient at secondary school level. For this, it is remarkable that in the data collection classroom groups of students were formed along gendered lines, with the exception of one single group. Although a systematic inquiry into the construction of identity was beyond the scope of this study, such an investigation could in the future provide fruitful insights into how identity work may be implicated in and interwoven with students' epistemic practices. As was suggested earlier in

this chapter, monitoring who knows what in the classroom may contribute towards the construction of somewhat enduring identities of knowledgeable – and perhaps the opposite – students. A conversation analytic perspective could therefore shed light on the complex ways in which not only classroom-relevant identities such as ‘good language learners’ or disruptive students (for such identities in CLIL, see Skinnari, 2012), but also other macro-level identity categories that have been found to relate to educational outcomes and choices such as gender and social class may be in play in ‘full and public view’ (Macbeth, 2011, p. 447) in classroom.

This study set out to explore how students socially organise activities of seeking advice and assistance, and how the organisation of these activities may contribute towards learning. By expanding the focus beyond whole-class talk to peer interaction, this study has brought to the fore aspects of classroom life which may easily go unnoticed, not only by classroom-based research but also when planning, implementing and revising educational policies. How do we seek and receive help from others when we do not know something or are not able to do something is a fundamental issue not only in (CLIL) classrooms but represents a pervasive concern in many types of educational and workplace settings, as well as in everyday social life. It is this very reason that provides a basis for expecting the findings of this study to resonate in the wider society, beyond the study’s context of bilingual education. Given the centrality for learning of finding assistance in the classroom, a standing task for educational planning and teaching is therefore to facilitate learning arrangements which enable it by making sure that students have someone to ‘turn to’ when they are in need of assistance. Besides finding ways to support learner-initiated work towards resolving knowledge gaps in face to face interaction in the classroom, a related challenge for educationalists of the 21st century is to make sure that the same need can also be met in disembodied online learning environments. For the latter task, technological solutions that provide access to other learners and teachers, for example through online communities, discussion forums and shared workspaces, rather than those that are formatted as entirely independent and computer-assisted study packages are likely to have better possibilities to cater for the intricate and interactive aspects of resolving contingent problems in the course of learning.

YHTEENVETO

Tiedon merkityksiä: kuinka oppilaat käsittelevät tietämättömyyttä kaksikielisen luokkahuoneen vuorovaikutuksessa

Tämä tutkimus käsittelee tietämistä ja kielen oppimista luokkahuoneen sosiaalisessa vuorovaikutuksessa rakentuvina oppilaslähtöisinä toimintoina. Tutkimuksen tavoitteena on tarkastella niitä vuorovaikutuksellisia keinoja ja käytänteitä, joilla yläkouluikäiset oppilaat tekevät näkyväksi, määrittelevät ja selvittävät heiltä puuttuvaa tietoa luokkahuoneessa, jossa vieraan kielen opetus tapahtuu historian oppiaineeseen integroituna, ns. CLIL-opetuksena. Toisena tavoitteena on tarkastella, minkälaisia näkökulmia edellä mainitut tietokäytänteet tarjoavat luokkahuoneessa tapahtuvaan kielen oppimiseen. Tutkimuksen teoreettinen viitekehys rakentuu pääasiassa keskusteluanalyttisen episteemisyiden ja kielen oppimisen (ns. CA-SLA) tutkimuksen sekä CLIL-luokkahuonevuorovaikutustutkimuksen perustalle.

Sosiaalisen vuorovaikutuksen rooli oppimisessa on vakiintunut tutkimuskohde sekä monilla soveltavan kielentutkimuksen piiriin kuuluvilla lähialoilla, kuten toisen ja vieraan kielen oppimisen (SLA) parissa, että kasvatustieteellisessä tutkimuksessa. Perinteisesti SLA on lähestynyt vuorovaikutusta ensisijaisesti välineenä, joka voi johtaa muutoksiin oppijan kieltä koskevissa, sisäisissä kognitiivisissa tietorakenteissa. Vuorovaikutuksen merkitystä oppimiselle on tarkasteltu muun muassa syntyperäisten ja kakkoskielisten puhujien välisissä merkitysneuvotteluissa (ks. esim. Long, 1981, 1983a) ja luokkahuonekonteksteissa selvittämällä eri käytänteitä, joilla opettajat korjaavat oppilaidensa kielivirheitä koko luokan keskusteluissa (esim. Lyster & Mori, 2006; Lyster & Ranta, 1997). Uudempi tutkimus on pyrkinyt laajentamaan tätä kuvaa tarkastelemalla vuorovaikutusta sekä luonnollisena kontekstina havainnoitavissa olevalle oppimistoiminnalle että erillisinä toimintoina, joihin osallistuminen itsessään ilmentää oppimista (ks. esim. Atkinson, 2011). Yhtenä keskeisenä menetelmällisenä vaikuttajana tutkimushuomion siirtymisessä on ollut etnometodologinen keskusteluanalyysi sekä teoreettisena että metodologisena lähestymistapana ihmisten väliseen sosiaaliseen toimintaan.

Laajemmassa mittakaavassa 1990-luvun lopulla alkanut keskusteluanalyttinen kielen oppimisen tutkimus on tarkastellut oppimista sekä tilanteisesti rakentuvana ilmiönä, joka on osallistujien suuntautumisen kohteena yksittäisissä vuorovaikutussekvensseissä, että yksilöiden osallistumisessa tapahtuvina ajallisina muutoksina, jotka ovat analysoitavissa pitkäikäisaineistojen avulla. Tilanteisen oppimistoiminnan on havaittu rakentuvan muun muassa vuorovaikutuskäytänteistä, joilla osallistujat korjaavat vuorovaikutuksen ongelmia sekä selvittävät vieraiden sanojen merkitystä, niin pedagogisesti motivoituneissa tilanteissa kuin arkikeskusteluissakin (Brouwer, 2003; Lilja, 2010; Mortensen, 2011). Pitkäikäisaineistojen avulla on lisäksi saatu näkyviin ajan kuluessa tapahtuvia muutoksia oppijoiden korjauskäytänteissä, luokkahuoneiden osallistujarooleissa sekä tiettyjen kielen yksiköiden käytössä (ks. esim. Cekaite,

2007; Hauser, 2013; Hellermann, 2009). Oppimisen analysoinnissa osallistumisessa havaittujen muutosten kautta on toisaalta ollut haasteellista sekä muutosten kytkeminen osallistujien näkyviin orientaatioihin että niiden erottaminen vuorovaikutuskontekstin vaihtumisen aikaansaamista muutoksista. Lisäksi alalla on herännyt keskustelua seikoista, jotka liittyvät havaittavien muutosten pysyvyyteen sekä laajemminkin oppimisteorioiden rooliin analyysiprosessissa.

Tietämisen ja tietäjyyden sekä niihin liittyvien sosiaalisten suhteiden ja epäsymmetrioiden tarkastelulla on keskusteluanalyysissa oppimistutkimusta pidempi perinne. Tätä nykyä episteemisyydeksi kutsutun tutkimusalueen parissa on tarkasteltu sitä, miten keskustelijat suuntautuvat toistensa tietämisen tiloihin ja asteisiin erilaisissa vuorovaikutustoiminnoissa ja minkälaisia episteemisiä oikeuksia, velvollisuuksia ja normeja näissä tilanteissa rakennetaan. Viimeaikainen tutkimus on osoittanut, että puhujat voivat suuntautua tietäjyyseroihin analyttisena resurssina, joka yhdessä vuoron kieliopillisen rakenteen kanssa määrittää sitä, tulkitaanko puheenvuoroa funktioltaan tiedusteleväksi vai väittäväksi (Heritage 2012b). Luokkahuoneissa tietäminen toimintona kietoutuu lisäksi monin tavoin niiden institutionaaliseen, oppimisen tuottamiseen liittyvään tavoitteeseen ja työnjakoon. Niinpä esimerkiksi monien opettajien kysymysten voidaankin nähdä tiedustelevan oppilaiden tietämisen laajuutta ja siten pyrkivän identifioimaan eksplisiittistä opetusta tarvitsevia asioita.

Lähinnä opettajan toimintaan keskittynyt aiempi luokkahuonevuorovaikutuksen tutkimus on tarkastellut huomattavan vähän tilanteita, joissa oppilaat aloittavat kielen oppimiseen tähtäviä tai sitä tukevia vuorovaikutussekvenssejä (ks. kuitenkin esim Waring, 2011). Tiedämmekin vielä melko vähän siitä, miten oppilaat organisoivat opiskeluaan ja käsittelevät oppimisobjekteja ns. esittävän plenaariopetuksen ohessa ja ulkopuolella. Etenkin vieraskielistä, CLIL-opetusta käsittelevässä kirjallisuudessa aiheesta on hyvin vähän tutkimusta. Tämä tutkimus pyrkii paikkaamaan tätä aukkoa tarkastelemalla oppilaiden aloittamia vuorovaikutussekvenssejä, joilla he tekevät näkyväksi tiedon puutettaan ja hakevat neuvoa ja avustusta vieraskielisen luokkahuoneen tyypillisissä opiskelutilanteissa. Tutkimuksessa etsitään vastauksia seuraavaan kattavaan tutkimustehtävään:

Miten oppilaat identifioivat ja työstävät vuorovaikutuksessa tietoobjekteja, joita varten he tarvitsevat apua vieraskielisessä luokkahuoneessa? Miten nämä objektit ja niiden vuorovaikutuksellinen kohtelu auttavat käsitteellistämään kieltä, oppiainesisältöjä ja oppimista vieraskielisen opetuksen kontekstissa?

Tätä tutkimustehtävää tarkastellaan analyttisesti seuraavien empiiristen kysymysten avulla:

- 1) Miten ja minkälaisissa toimintakonteksteissa oppilaat osoittavat meillä olevaan opetukseen tai oppimistehtävään kohdistuvaa tietämättömyyttä sekventiaalisiksi etujäseniksi asemoiduissa vuoroissa?

- 2) Miten tällaisia tietämättömyyden osoituksia kohdellaan niitä seuraavassa vuorovaikutuksessa?
 - i. Miten tietämättömyyden osoituksista alkavat vuorovaikutustilanteet rakentuvat sekventiaalisesti?
 - ii. Minkälaisiin vuorovaikutuksellisiin tehtäviin osallistujat suuntautuvat näissä sekvensseissä?
- 3) Minkälaisia oppimisen mahdollisuuksia osallistuminen näihin toimintoihin tarjoaa?

Menetelmällisesti tutkimus nojautuu etnometodologiseen keskusteluanalyysiin (ks. esim. Psathas, 1995; ten Have, 2007; Antaki, 2011), jonka soveltaminen tarjoaa mahdollisuuden tarkastella tietyn yhteiskunnallisen instituution - koululaitoksen - toimintaa osallistujien näkökulmasta. Menetelmän avulla tietämistä ja oppimista, joita on pitkään tutkittu soveltavassa kielentutkimuksessa ja kasvatustieteessä ensisijaisesti yksilöpsykologisina ilmiöinä, voidaan tarkastella havainnoitavissa olevina ilmiöinä, joita osallistujat rakentavat sosiaalisessa vuorovaikutuksessa sekventiaalisesti: toisin sanoen asioina, joiden ”tekemiseen” osallistujat suuntautuvat tietyissä tilanteissa. Tutkimusaineistona on käytetty video- ja äänitallenteita 15 peräkkäiseltä yläkoulun historian oppitunnilta, jotka opetettiin englanniksi kahdeksaluokkalaisten suomea äidinkielenään puhuville oppilaille. Kaikenlainen luokkahuoneessa tapahtuva vuorovaikutus pyrittiin tallentamaan mahdollisimman kattavasti siten, että kolmen luokkahuonekameran lisäksi ryhmissä istuneiden oppilaiden pöydille asennettiin myös kannettavat audiotallentimet. Litteroitujen tallenteiden lisäksi tutkimusaineistona ovat myös tunneilla käytetyt pedagogiset tekstit ja tehtävät sekä oppilaiden tehtävävastaukset. Näkyvään tietämättömyyden osoitukseen tutkimusilmiönä ja siitä johdettuihin edellä mainittuihin tutkimuskysymyksiin päädyttiin aineistolähtöisesti videoitua oppituntiaineistoa tarkastelemalla ja analyytisiä huomioita tehden. Kun varsinainen tutkimusilmiö oli näin identifioitu, kaikki oppitunnit käytiin vielä kertaalleen läpi ja muodostettiin lopullinen analyysikokoelma.

Tutkimuksen ensimmäinen analyysiluku (luku 4) tarkastelee tietämättömyyteen liittyviä vuorovaikutuskäytänteitä, vastaten tutkimuskysymyksiin 1 ja 2. Luvussa osoitetaan, että tietämättömyys voidaan tehdä näkyväksi ja vuorovaikutuksellisesti relevantiksi ilmiöksi monin tavoin. Se ei välttämättä tapahdu pelkästään oppilaiden käytettävissä olevien äidinkielen ja vieraan kielen mahdollistamien resurssien avulla vaan myös kehollisin keinoin ja vuorovaikutuksen sekventiaaliseen etenemiseen suuntautuen. Tutkimuksen keskiössä oleville vuorovaikutussekvensseille osoitetaan myös erilaisia tyyppisiä toimintakonteksteja, kuten koko luokan plenaariopetus ja ryhmäkeskustelut, joiden asettamisissa puitteissa tietämättömyyttä ratkotaan. Lisäksi luvussa näytetään, kuinka osallistujat suuntautuvat tavanomaisesti kolmeen eri vuorovaikutukselliseen tehtävään niille ominaisissa sekventiaalisissa asemissa käsitellessään oppilaiden aloittamia tietämättömyyden osoituksia. Näitä tehtäviä ovat tietävän osapuolen löytäminen luokkahuoneen osallistujien joukosta, ei-tiedetyn objektin identifi-

oiminen sekä tietäväksi asemoidun vastauksen tuottaminen ja sen oikeellisuuden määrittäminen.

Aineistokokoelman perusteella oppilaat ratkaisevat tietoaukkoja rutiininomaisesti osana oppituntien pääasiallista toimintaa, käyttäen hyväkseen sekä äidinkieltään että opetuksen virallista kieltä, englantia. Tietoaukot suunnataan yleensä lähellä istuvalle oppilaalle tyypillisesti katseen tai nimeämisen keinoin, jolloin ne eivät välttämättä tule missään vaiheessa opettajan ja muun luokan kuuluviin. Tietoaukon identifioiminen pitää sisällään osallistujien neuvottelun sekä siitä, *mitä* kysyjä ei tiedä, että hänen tietämättömyytensä *asteesta*. Oppilaat käyttävät esimerkiksi eri kielellisten muotoilujen mahdollistamia resursseja merkitsemään kysymyksiä tiedusteleviksi tai tarkistaviksi. Oppilaat käyttävät usein myös meneillään olevaa (kehollista) tehtävätoimintaa analyttisenä resurssina tietoaukon muotoiluissa. Näin tapahtuu esimerkiksi tilanteissa, joissa etsitään tietoa tehtävävastauksia varten oppimateriaalitekstistä tai tulkitaan toisen oppilaan tehtäväntekoon kohdistuvaa katsetta pyyntönä jakaa vastaus. Tietävien vastausten tuottamisen tarkastelun yhteydessä luvussa tuodaan esille käytänteitä, joiden suhteen vertaisvuorovaikutuksessa tapahtuva tietoaukkojen ratkaisu eroaa oppilaan ja opettajan välisestä vuorovaikutuksesta. Näitä ovat muun muassa oppilaiden välillä tapahtuva vastausten oikeellisuuden kiistäminen sekä minimaalisten tietämättömyyden osoitusten ja arvauksiksi merkittyjen vastausten riittävyys sekventiaalisina jälkijäseninä. Se, että vastaavia käytänteitä ei esiinny opettajan ollessa vastaajan roolissa, osoittaa eroja siinä, minkälaisia tietämistä koskevia tehtäviä ja vastuita osallistujat asettavat toisille osapuolille.

Luvussa 5 vastataan kolmanteen tutkimuskysymykseen analysoimalla sekä 15 tunnin muodostaman pitkittäisen vuorovaikutusaineiston että oppilailta kerättyjen tehtävävastausten avulla, mitä tietämättömyydestä liikkeelle lähtevät tilanteet kertovat sosiaalisessa vuorovaikutuksessa tapahtuvasta oppimisesta. Analyysi kiinnittyy siihen, minkälaisiin vuorovaikutusilmiöihin keskustelunanalyttisessä oppimistutkimuksessa usein käytetty ilmaus ”osallistujien (näkyvä) orientaatio oppimiseen” liittyy. Luvussa osoitetaan, että oppimiseen suuntautumisessa voidaan erottaa kaksi eri ajallista ulottuvuutta. Aloittamalla vuorovaikutussekvenssin sillä, että tekee oman tietämättömyytensä relevantiksi ilmiöksi, oppilas yhtäältä suuntautuu sekvenssin lopputuloksena olevan hänen oman episteemisen statuksensa muutos tietämättömästä tietäväksi. Tämän lisäksi näissä sekvensseissä muodostettua tietoa voidaan käyttää myöhemmissä tilanteissa erilaisten vuorovaikutustoimintojen rakentamisen resurssina, joko samalla oppitunnilla tai pidemmänkin ajan kuluttua. Näin tapahtuu esimerkiksi tilanteissa, joissa oppilaat merkitsevät tieto-objekteja joko heidän itsensä tai heidän puhekumppaninsa aiemmin oppimana tai tietämänä käyttämällä kyseistä objektia asiantuntijuutta implikoivien vuorojen muotoilussa vastaanottajalle tunnistettavissa olevilla tavoilla. Havainnot tietämiseen liittyvien vuorovaikutuksellisten muutosten kytkeytymisestä toimintojen muotoiluun, tunnistettavaksi tekemiseen ja tunnistamiseen avaavat tulevalle tutkimukselle uusia mahdollisuuksia tarkastella oppimista ilmiöissä, joiden rakenteelliset piirteet on keskustelunanalyysin parissa hyvin dokumentoitu.

Oppimisen eri temporaalisten ulottuvuuksien analysoinnin lisäksi luku 5 tarkastelee tapaustutkimuksen keinoin luokkahuoneen materiaalisien rakenteen ja sen tarjoamien osallistumiskehikkomahdollisuuksien merkitystä oppilaiden tehtävävastaustoiminnalle. Analyysi osoittaa, että itsenäiseksikin suunnitellun pedagogisen toiminnan aikana oppilaat voivat monitoroida ja hyödyntää luokan eri vuorottelujärjestelmien puhetta, niin opettajajohtoisia keskeytyksiä tehtävänkäsittelyä kuin luokkatilassa tehtävänkäsittelyn aikana kuuluvaa puhetta. Havaintojen perusteella luokkahuoneoppiminen tapahtuu kompleksissa vuorovaikutusympäristössä, joka ei rajoitu kunkin oppilaan välittömässä läheisyydessä oleviin toisiin oppilaisiin eikä näiden mahdollisesti muodostamiin pienryhmiin, ja on näin ollen erilainen kahdenkeskisistä vuorovaikutustilanteista.

Väitöskirjan päätösluku tiivistää empiirisen analyysin päätulokset ja vastaa varsinaiseen tutkimustehtävään, jonka keskiössä ovat käsitteet kieli ja sisältö sekä niiden integroiminen vieraskielisessä opetuksessa. Luvussa esitetään, että aineiston valossa vieraskielistä opetusta leimaa tieto-objektien monimuotoisuus, ja että oppilaiden aloittamat sekvenssit tarjoavat mahdollisuuksia tarkastella heidän orientaatioitaan kielen ja sisällön suhteeseen sellaisena kuin se käytännön toiminnassa esiintyy. Aineiston valossa oppilaat eivät pelkästään työstä vieraaseen kieleen ja akateemisiin sisältöihin vaan myös esimerkiksi kulttuuriin asioihin liittyvää tietoutta. Lisäksi kieli ja sen ongelmat ovat monissa tilanteissa sisältöä ja opiskelua avustavassa roolissa. Esimerkiksi sanojen merkityksistä ja niiden kirjoitusasuista neuvotellaan silloin, kun niitä tarvitaan jonkun tehtävän tai toiminnon suorittamiseen. Näin ollen sanan oppimisella on konkreettinen merkitys ja panos oppilaille.

Kaiken kaikkiaan tutkimuksen tulokset lisäävät ymmärrystä niistä käytännöistä, joilla tietämistä ja oppimista tehdään näkyväksi vieraskielisen opetuksen luokkahuonevuorovaikutuksessa. Tutkimus myös lisää tietämystä oppilaiden tekemien aloitteiden, oppilaskeskeisten toimintamuotojen ja ylipäätään vertaisvuorovaikutuksen merkityksestä luokkahuoneissa tapahtuvalle oppimiselle.

REFERENCES

- Aikhenvald, A. Y. & Dixon, R. M. W. (eds.) 2003. *Studies in Evidentiality*. Amsterdam: John Benjamins.
- Amir, A. & Musk, N. 2013. Language policing: micro-level language policy-in-process in the foreign language classroom. *Classroom Discourse*, 4 (2), 151–167.
- Antaki, C. 2011. Six kinds of applied conversation analysis. In C. Antaki (ed.), *Applied Conversation Analysis: Intervention and Change in Institutional Talk* (pp. 1–15). Basingstoke: Palgrave Macmillan.
- Aoki, P. M., Szymanski, M. H., Plurkowski, L., Thornton, J. D., Woodruff, A. & Yi, W. 2006. Where's the "party" in "multi-party"? Analyzing the structure of small-group sociable talk. *Proceedings of the 20th Anniversary Conference on Computer Supported Cooperative Work* (pp. 393–402). Banff, Canada: ACM.
- Arminen, I. 2005. *Institutional Interaction: Studies of Talk at Work*. Aldershot: Ashgate.
- Astington, J. W. 2006. The developmental interdependence of theory of mind and language. In N. J. Enfield & S. C. Levinson (eds.), *Roots of Human Sociality: Culture, Cognition and Interaction* (pp. 179–206). Oxford: Berg.
- Atkinson, D. 2011. *Alternative Approaches to Second Language Acquisition*. Milton Park, Abingdon: Routledge.
- Atkinson, J. M. & Heritage, J. 1984. Part II: Preference organisation. In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 53–56). Cambridge: Cambridge University Press.
- Bannink, A. & Van Dam, J. 2013. Voices, grins and laughter in the lecture room. *Linguistics and Education*, 24 (4), 572–584.
- Barnes, D. 1979. *From Communication to Curriculum*. Harmondsworth: Penguin books.
- Barnes, D. & Todd, F. 1995. *Communication and Learning Revisited: Making Meaning Through Talk*. Portsmouth, NH: Boynton/Cook.
- Beach, W. A. & Metzger, T. 1997. Claiming insufficient knowledge. *Human Communication Research*, 23 (4), 562–588.
- Billig, M. 1999a. Whose terms? Whose ordinariness? Rhetoric and ideology in conversation analysis. *Discourse & Society*, 10 (4), 543–558.
- Billig, M. 1999b. Conversation analysis and the claims of naivety. *Discourse & Society*, 10 (4), 572–576.
- Block, D. 2003. *The Social Turn in Second Language Acquisition*. Edinburgh: Edinburgh University Press.
- Bolden, G. B. 2006. Little words that matter: discourse markers "so" and "oh" and the doing of other-attentiveness in social interaction. *Journal of Communication*, 56 (4), 661–688.
- Bolden, G. B. 2011. On the organization of repair in multiperson conversation: the case of "other"-selection in other-initiated repair sequences. *Research on Language and Social Interaction*, 44 (3), 237–262.

- Bolden, G. B. 2012. Across languages and cultures: brokering problems of understanding in conversational repair. *Language in Society*, 41 (1), 97–121.
- Bonacina, F. & Gafaranga, J. 2011. “Medium of instruction” vs. “medium of classroom interaction”: language choice in a French complementary school classroom in Scotland. *International Journal of Bilingual Education and Bilingualism*, 14 (3), 319–334.
- Brouwer, C. E. 2003. Word searches in NNS-NS interaction: opportunities for language learning? *Modern Language Journal*, 87 (4), 534–545.
- Carlgren, I. 2009. CA-studies of learning—from an educational perspective. *Scandinavian Journal of Educational Research*, 53 (2), 203–209.
- Cekaite, A. 2007. A child’s development of interactional competence in a Swedish L2 classroom. *Modern Language Journal*, 91 (1), 45–62.
- Cenoz, J., Genesee, F. & Gorter, D. 2014. Critical analysis of CLIL: taking stock and looking forward. *Applied Linguistics*, 35 (3), 243–262.
- Churchill, E. 2007. A dynamic systems account of learning a word: from ecology to form relations. *Applied Linguistics*, 29 (3), 339–358.
- Coffin, C. 2004. Learning to write history: the role of causality. *Written Communication*, 21 (3), 261–289.
- Coffin, C. 2006a. Learning the language of school history: the role of linguistics in mapping the writing demands of the secondary school curriculum. *Journal of Curriculum Studies*, 38 (4), 413–429.
- Coffin, C. 2006b. *Historical Discourse: The Language of Time, Cause and Evaluation*. London: Continuum.
- Cook, V. 2010. Prolegomena to second language learning. In P. Seedhouse, S. Walsh & C. Jenks (eds.), *Conceptualising “Learning” in Applied Linguistics* (pp. 6–22). Basingstoke: Palgrave Macmillan.
- Copp Jinkerson, A. 2011. Interpreting and managing a monolingual norm in an English-speaking class in Finland: when first and second graders contest the norm. *Apples – Journal of Applied Language Studies*, 5 (1), 27–48.
- Couper-Kuhlen, E. 1992. The prosody of interactive repair. In P. Auer & A. Di Luzio (eds.), *The Contextualization of Language* (pp. 337–364). Amsterdam: John Benjamins.
- Couper-Kuhlen, E. & Ono, T. 2007. “Incrementing” in conversation: a comparison of practices in English, German and Japanese. *Pragmatics*, 17 (4), 513–552.
- Dalton-Puffer, C. 2007. *Discourse in Content and Language Integrated Learning (CLIL) Classrooms*. Amsterdam: John Benjamins.
- Dalton-Puffer, C. 2011. Content-and-Language Integrated Learning: from practice to principles? *Annual Review of Applied Linguistics*, 31, 182–204.
- Dalton-Puffer, C., Llinares, A., Lorenzo, F. & Nikula, T. 2014. “You can stand under my umbrella”: immersion, CLIL and bilingual education. A response to Cenoz, Genesee & Gorter (2013). *Applied Linguistics*, 35 (2), 213–218.
- Dalton-Puffer, C. & Nikula, T. 2006. Pragmatics of content-based instruction: teacher and student directives in Finnish and Austrian classrooms. *Applied Linguistics*, 27 (2), 241–267.

- De Bot, K., Lowie, W. & Verspoor, M. 2007. A dynamic systems theory approach to second language acquisition. *Bilingualism: Language and Cognition*, 10 (1), 7–21.
- Drake, A. V. 2013. *Turn-Final “or” in English: A Conversation Analytic Perspective*. Unpublished doctoral dissertation. University of Wisconsin-Madison, USA.
- Drew, P. 1997. “Open” class repair initiators in response to sequential sources of troubles in conversation. *Journal of Pragmatics*, 28 (1), 69–101.
- Drew, P. 2012. What drives sequences? *Research on Language and Social Interaction*, 45 (1), 61–68.
- Drew, P. & Heritage, J. (eds.) 1992. *Talk at Work: Interaction in Institutional Settings*. Cambridge: Cambridge University Press.
- Dryer, M. S. 2013. Polar questions. In M. S. Dryer & M. Haspelmath (eds.), *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.
- Dunbar, R. 1993. Coevolution of neocortical size, group size and language in humans. *Behavioral and brain sciences*, 16 (4), 681–735.
- Dunbar, R. 2003. The social brain: mind, language, and society in evolutionary perspective. *Annual Review of Anthropology*, 32 (1), 163–181.
- Edwards, D. 1993. But what do children really think?: Discourse analysis and conceptual content in children’s talk. *Cognition and Instruction*, 11 (3&4), 207–225.
- Edwards, D. 2006. Discourse, cognition and social practices: the rich surface of language and social interaction. *Discourse Studies*, 8 (1), 41–49.
- Edwards, D. & Potter, J. 2005. Discursive psychology, mental states and descriptions. In H. te Molder & J. Potter (eds.), *Conversation and Cognition* (pp. 241–259). Cambridge: Cambridge University Press.
- Egbert, M. 1997. Schisiming: the collaborative transformation from a single conversation to multiple conversations. *Research on Language and Social Interaction*, 30 (1), 1–51.
- Ekström, A. 2013. Epistemic positioning and frameworks for participation: learning to assess objects of craft in teacher education. *Learning, Culture and Social Interaction*, 2 (4), 277–292.
- Ellis, R. 2001. Introduction: investigating form-focused instruction. *Language Learning*, 51 (issue supplement), 1–46.
- Ellis, R. 2010. Theoretical pluralism in SLA: a way forward? In P. Seedhouse, S. Walsh & C. Jenks (eds.), *Conceptualising “Learning” in Applied Linguistics* (pp. 23–51). Basingstoke: Palgrave Macmillan.
- Ellis, R. & Sheen, Y. 2006. Reexamining the role of recasts in second language acquisition. *Studies in Second Language Acquisition*, 28 (4), 575–600.
- Escobar Urmeneta, C. 2013. Learning to become a CLIL teacher: teaching, reflection and professional development. *International Journal of Bilingual Education and Bilingualism*, 16 (3), 334–353.
- Eskildsen, S. W. 2012. L2 negation constructions at work. *Language Learning*, 62 (2), 335–372.

- Evnitskaya, N. 2012. *Talking Science in a Second Language: The Interactional Co-construction of Dialogic Explanations in the CLIL Science Classroom*. Unpublished doctoral dissertation. Universitat Autònoma de Barcelona, Spain.
- Evnitskaya, N. & Morton, T. 2011. Knowledge construction, meaning-making and interaction in CLIL science classroom communities of practice. *Language and Education*, 25 (2), 109-127.
- Ferguson, C. A. 1975. Toward a characterization of English foreigner talk. *Anthropological Linguistics*, 17 (1), 1-14.
- Firth, A. 1996. The discursive accomplishment of normality: on "lingua franca" English and conversation analysis. *Journal of Pragmatics*, 26, 237-259.
- Firth, A. 2009. Doing not being a foreign language learner: English as a lingua franca in the workplace and (some) implications for SLA. *International Review of Applied Linguistics in Language Teaching*, 47 (1), 127-156.
- Firth, A. & Wagner, J. 1997. On discourse, communication, and (some) fundamental concepts in SLA research. *Modern Language Journal*, 81 (3), 285-300.
- Firth, A. & Wagner, J. 2007. Second/foreign language learning as a social accomplishment: elaborations on a reconceptualized SLA. *Modern Language Journal*, 91 (5), 800-819.
- Ford, C. E. 1999. Collaborative construction of task activity: coordinating multiple resources in a high school physics lab. *Research on Language and Social Interaction*, 32 (4), 369-408.
- Fox, B. A. & Thompson, S. A. 2010. Responses to wh-questions in English conversation. *Research on Language and Social Interaction*, 43 (2), 133-156.
- Gajo, L. 2007. Linguistic knowledge and subject knowledge: how does bilingualism contribute to subject development? *International Journal of Bilingual Education and Bilingualism*, 10 (5), 563-581.
- Garfinkel, H. 1967. *Studies in Ethnomethodology*. Englewood Cliffs, N.J.: Prentice-Hall.
- Gass, S. 2004. Commentaries: conversation analysis and input-interaction. *Modern Language Journal*, 88 (4), 597-602.
- Gibson, J. 1979. *The Ecological Approach to Visual Perception*. Boston: Houghton Mifflin.
- Goffman, E. 1978. Response cries. *Language*, 54 (4), 787-815.
- Goffman, E. 1981. *Forms of talk*. Philadelphia: University of Pennsylvania Press.
- Goodwin, C. 1979. The interactive construction of a sentence in natural conversation. In G. Psathas (ed.), *Everyday Language: Studies in Ethnomethodology* (pp. 97-121). New York: Irvington.
- Goodwin, C. 1980. Restarts, pauses, and the achievement of a state of mutual gaze at turn-beginning. *Sociological Inquiry*, 50 (3-4), 272-302.
- Goodwin, C. 1981. *Conversational Organization: Interaction Between Speakers and Hearers*. New York: Academic Press.
- Goodwin, C. 2000. Action and embodiment within situated human interaction. *Journal of Pragmatics*, 32, 1489-1522.

- Goodwin, C. 2013. The co-operative, transformative organization of human action and knowledge. *Journal of Pragmatics*, 46 (1), 8–23.
- Goodwin, M. H. & Goodwin, C. 1986. Gesture and coparticipation in the activity of searching for a word. *Semiotica*, 62 (1-2), 51–75.
- Gordon, C. 2012. Beyond the observer's paradox: the audio-recorder as a resource for the display of identity. *Qualitative Research*, 13 (3), 299–317.
- Grice, H. P. 1975. Logic and conversation. In P. Cole & J. L. Morgan (eds.), *Syntax and semantics 3: speech acts* (pp. 41–58). New York: Academic Press.
- Haakana, M. 2011. "Mitä" ja muut avoimet korjausaloitteet. *Virittäjä*, (1), 36–67.
- Hakulinen, A. 2001a. Minimal and non-minimal answers to yes-no questions. *Pragmatics*, 11 (1), 1–15.
- Hakulinen, A. 2001b. Liitepartikkelin -han/-hän syntaksia ja pragmatiikkaa. In L. Laitinen, P. Nuolijärvi, M.-L. Sorjonen & M. Vilkuna (eds.), *Lukemisto: kirjoituksia kolmelta vuosikymmeneltä* (pp. 44–90). Helsinki: Suomalaisen Kirjallisuuden Seura.
- Hakulinen, A. & Saari, M. 1995. Temporaaalisesta adverbista diskurssipartikkeliksi. *Virittäjä*, (4), 481–500.
- Hakulinen, A. & Seppänen, E.-L. 1992. Finnish kato: from verb to particle. *Journal of Pragmatics*, 18 (6), 527–549.
- Hall, J. K. & Verplaetse, L. S. 2000. *Second and Foreign Language Learning Through Classroom Interaction*. Mahwah (NJ): LEA.
- Halliday, M. A. K. 1996. Some grammatical problems in scientific English. In M. A. K. Halliday & J. R. Martin (eds.), *Writing Science: Literacy and Discursive Power* (pp. 69–85). London: Falmer Press.
- Halliday, M. A. K. & Webster, J. J. 2004. *The Language of Science*. London: Continuum.
- Hardman, F., Abd-Kadir, J. & Smith, F. 2008. Pedagogical renewal: improving the quality of classroom interaction in nigerian primary schools. *International Journal of Educational Development*, 28 (1), 55–69.
- Hasan, R. 1996. Literacy, everyday talk and society. In R. Hasan & G. Williams (eds.), *Literacy in Society* (pp. 377–424). London: Longman.
- Hauser, E. 2008. Nonformal institutional interaction in a conversation club: conversation partners' questions. *Journal of Applied Linguistics*, 5 (3), 275–296.
- Hauser, E. 2011. On the danger of exogenous theory in CA-for-SLA: a response to Hellermann and Cole (2009). *Applied Linguistics*, 32 (3), 348–352.
- Hauser, E. 2013. Stability and change in one adult's second language English negation. *Language Learning*, 63 (3), 463–498.
- He, A. W. 2004. CA for SLA: arguments from the Chinese language classroom. *Modern Language Journal*, 88 (4), 568–582.
- Heath, C. 1984. Talk and reciprocity: sequential organization in speech and body movement. In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 247–265). Cambridge: Cambridge University Press.
- Helasvuo, M.-L., Laakso, M. & Sorjonen, M.-L. 2004. Searching for words: syntactic and sequential construction of word search in conversations of

- Finnish speakers with aphasia. *Research on Language and Social Interaction*, 37 (1), 1-37.
- Hellermann, J. 2003. The interactive work of prosody in the IRF exchange: teacher repetition in feedback moves. *Language in Society*, 32 (1), 79-104.
- Hellermann, J. 2006. Classroom interactive practices for developing L2 literacy: a microethnographic study of two beginning adult learners of English. *Applied Linguistics*, 27 (3), 377-404.
- Hellermann, J. 2007. The development of practices for action in classroom dyadic interaction: focus on task openings. *Modern Language Journal*, 91 (1), 83-96.
- Hellermann, J. 2009. Looking for evidence of language learning in practices for repair: a case study of self-initiated self-repair by an adult learner of English. *Scandinavian Journal of Educational Research*, 53 (2), 113-132.
- Hellermann, J. 2011. Members' methods, members competencies: looking for evidence of language learning in longitudinal investigation of other-initiated repair. In J. K. Hall, J. Hellermann & S. Pekarek Doehler (eds.), *L2 Interactional Competence and Development* (pp. 147-171). Bristol: Multilingual Matters.
- Hellermann, J. & Cole, E. 2009. Practices for social interaction in the language-learning classroom: disengagements from dyadic task interaction. *Applied Linguistics*, 30 (2), 186-215.
- Hellermann, J. & Doehler, S. P. 2010. On the contingent nature of language-learning tasks. *Classroom Discourse*, 1 (1), 25-45.
- Heritage, J. 1984a. A change-of-state token and aspects of its sequential placement. In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 299-345). Cambridge: Cambridge University Press.
- Heritage, J. 1984b. *Garfinkel and Ethnomethodology*. Cambridge: Polity Press.
- Heritage, J. 1995. Conversation analysis: methodological aspects. In U. M. Quasthoff (ed.), *Aspects of Oral Communication* (pp. 391-416). Berlin: Walter de Gruyter.
- Heritage, J. 2002. The limits of questioning: negative interrogatives and hostile question content. *Journal of Pragmatics*, 34 (10-11), 1427-1446.
- Heritage, J. 2008. Conversation analysis as social theory. In B. Turner (ed.), *The New Blackwell Companion to Social Theory* (pp. 300-320). Oxford: Blackwell.
- Heritage, J. 2010. Questioning in medicine. In A. F. Freed & S. Ehrlich (eds.), *"Why Do You Ask?": The Function of Questions in Institutional Discourse* (pp. 42-68). Oxford: Oxford University Press.
- Heritage, J. 2011. Territories of knowledge, territories of experience: empathic moments in interaction. In T. Stivers, L. Mondada & J. Steensig (eds.), *The Morality of Knowledge in Conversation* (pp. 159-183). Cambridge: Cambridge University Press.
- Heritage, J. 2012a. Epistemics in action: action formation and territories of knowledge. *Research on Language and Social Interaction*, 45 (1), 1-29.
- Heritage, J. 2012b. The epistemic engine: sequence organization and territories of knowledge. *Research on Language and Social Interaction*, 45 (1), 30-52.

- Heritage, J. 2012c. Epistemics in conversation. In J. Sidnell & T. Stivers (eds.), *The Handbook of Conversation Analysis* (pp. 370–394). Chichester: Wiley-Blackwell.
- Heritage, J. 2012d. Beyond and behind the words: some reactions to my commentators. *Research on Language and Social Interaction*, 45 (1), 76–81.
- Heritage, J. 2013. Action formation and its epistemic (and other) backgrounds. *Discourse Studies*, 15 (5), 551–578.
- Heritage, J. & Clayman, S. 2010. *Talk in Action: Interactions, Identities and Institutions*. Chichester: Wiley-Blackwell.
- Heritage, J. & Raymond, G. 2005. The terms of agreement: indexing epistemic authority and subordination in talk-in-interaction. *Social Psychology Quarterly*, 68 (1), 15–38.
- Holmberg, A. 2014. The syntax of the Finnish question particle. In P. Svenonius (ed.), *Functional Structure from Top to Toe: The Cartography of Syntactic Structures, Volume 9* (pp. 266–289). Oxford: Oxford University Press.
- Hutchby, I. & Wooffitt, R. 2008. *Conversation Analysis* (2nd ed.). Cambridge: Polity Press.
- Iivonen, A. 2009. Major features of standard Finnish phonetics. In V. de Silva & R. Ullakonoja (eds.), *Phonetics of Russian and Finnish: General Description of Phonetic Systems: Experimental Studies on Spontaneous and Read-aloud Speech* (pp. 47–65). Frankfurt am Main: Peter Lang.
- Jakonen, T. 2014. Building bridges: how secondary school pupils bring their informal learning experiences into a content and language integrated (CLIL) classroom. *Apples – Journal of Applied Language Studies*, 8 (1), 7–28.
- Jakonen, T. & Morton, T. 2013. Epistemic search sequences in peer interaction in a content-based language classroom. *Applied Linguistics*, advance access.
- Jefferson, G. 1972. Side sequences. In D. Sudnow (ed.), *Studies in social interaction* (pp. 294–338). New York: Free Press.
- Jefferson, G. 2004a. Glossary of transcript symbols with an introduction. In G. H. Lerner (ed.), *Conversation Analysis: Studies From the First Generation* (pp. 13–31). Philadelphia, PA: John Benjamins.
- Jefferson, G. 2004b. “At first I thought”: a normalizing device for extraordinary events. In G. H. Lerner (ed.), *Conversation Analysis: Studies From the First Generation* (pp. 131–167). Philadelphia, PA: John Benjamins.
- Jones, R. & Thornborrow, J. 2004. Floors, talk and the organization of classroom activities. *Language in Society*, 33 (3), 399–423.
- Kasper, G. 2004. Participant orientations in German conversation-for-learning. *Modern Language Journal*, 88 (4), 551–567.
- Kasper, G. 2009a. Locating cognition in second language interaction and learning: inside the skull or in public view? *International Review of Applied Linguistics in Language Teaching*, 47 (1), 11–36.
- Kasper, G. 2009b. Categories, context, and comparison in conversation analysis. In H. T. Nguyen & G. Kasper (eds.), *Talk-in-Interaction: Multilingual Perspectives* (pp. 1–28). Honolulu: National Foreign Language Resource Center.

- Kasper, G. & Wagner, J. 2011. A conversation-analytic approach to second language acquisition. In D. Atkinson (ed.), *Alternative Approaches to Second Language Acquisition* (pp. 117–142). Milton Park, Abingdon: Routledge.
- Keevallik, L. 2011. The terms of not knowing. In T. Stivers, L. Mondada & J. Steensig (eds.), *The Morality of Knowledge in Conversation* (pp. 184–206). Cambridge: Cambridge University Press.
- Kitzinger, C. 2008. Developing feminist conversation analysis: a response to Wovk. *Human Studies*, 31 (2), 179–208.
- Knorr Cetina, K. 2001. Objectual practice. In T. R. Schatzki, E. von Savigny & K. Knorr-Cetina (eds.), *The Practice Turn in Contemporary Theory* (pp. 184–197). New York: Routledge.
- Koivisto, A. 2014. Displaying now-understanding: the Finnish change-of-state token “aa”. *Discourse Processes*, advance access.
- Koole, T. 2007. Parallel activities in the classroom. *Language and Education*, 21 (6), 487–501.
- Koole, T. 2010. Displays of epistemic access: student responses to teacher explanations. *Research on Language and Social Interaction*, 43 (2), 183–209.
- Koole, T. 2012. The epistemics of student problems: explaining mathematics in a multi-lingual class. *Journal of Pragmatics*, 44 (13), 1902–1916.
- Koschmann, T. & LeBaron, C. 2002. Learner articulation as interactional achievement: studying the conversation of gesture. *Cognition and Instruction*, 20 (2), 249–282.
- Koshik, I. 2002a. A conversation analytic study of yes/no questions which convey reversed polarity assertions. *Journal of Pragmatics*, 34 (12), 1851–1877.
- Koshik, I. 2002b. Designedly incomplete utterances: a pedagogical practice for eliciting knowledge displays in error correction sequences. *Research on Language and Social Interaction*, 35 (3), 277–309.
- Koshik, I. 2003. Wh-questions used as challenges. *Discourse Studies*, 5 (1), 51–77.
- Kupetz, M. 2011. Multimodal resources in students’ explanations in CLIL interaction. *Novitas-ROYAL*, 5 (1), 121–142.
- Kurhila, S. 2006. *Second Language Interaction*. Amsterdam: John Benjamins.
- Kääntä, L. 2010. *Teacher Turn-Allocation and Repair Practices in Classroom Interaction: A Multisemiotic Perspective*. Jyväskylä studies in humanities 137. University of Jyväskylä, Finland.
- Kääntä, L. 2012. Teachers’ embodied allocations in instructional interaction. *Classroom Discourse*, 3 (2), 166–186.
- Kääntä, L. & Haddington, P. 2011. Johdanto multimodaaliseen vuorovaikutukseen. In P. Haddington & L. Kääntä (eds.), *Kieli, keho ja vuorovaikutus: multimodaalinen näkökulma sosiaaliseen toimintaan* (pp. 11–45). Helsinki: Suomalaisen Kirjallisuuden Seura.
- Kääntä, L., Jauni, H., Leppänen, S., Peuronen, S. & Paakkinen, T. 2013. Learning English through social interaction: the case of Big Brother 2006, Finland. *Modern Language Journal*, 97 (2), 340–359.

- Kääntä, L. & Piirainen-Marsh, A. 2013. Manual guiding in peer group interaction: a resource for organizing a practical classroom task. *Research on Language and Social Interaction*, 46 (4), 1–43.
- Labov, W. & Fanshel, D. 1977. *Therapeutic Discourse: Psychotherapy as Conversation*. New York: Academic Press.
- Lafford, B. 2007. Second language acquisition reconceptualized? The impact of Firth and Wagner (1997). *Modern Language Journal*, 91 (5), 735–756.
- Lantolf, J. P. & Thorne, S. L. 2006. *Sociocultural Theory and the Genesis of Second Language Development*. Oxford: Oxford University Press.
- Larsen-Freeman, D. 1997. Chaos/complexity science and second language acquisition. *Applied Linguistics*, 18 (2), 141–165.
- Larsen-Freeman, D. 2004. Commentaries: CA for SLA? It all depends. . . *Modern Language Journal*, 88 (4), 603–607.
- Larsen-Freeman, D. 2011. A complexity theory approach to second language development/acquisition. In D. Atkinson (ed.), *Alternative Approaches to Second Language Acquisition* (pp. 48–72). Milton Park, Abingdon: Routledge.
- Lasagabaster, D. & Sierra, J. M. 2010. Immersion and CLIL in English: more differences than similarities. *ELT Journal*, 64 (4), 367–375.
- Laury, R. 1997. *Demonstratives in Interaction: The Emergence of a Definite Article in Finnish*. Amsterdam: John Benjamins.
- Lave, J. 1993. The practice of learning. In S. Chaiklin & J. Lave (eds.), *Understanding Practice: Perspectives on Activity and Context* (pp. 3–32). Cambridge: Cambridge University Press.
- Lave, J. & Wenger, E. 1991. *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Lee, Y.-A. 2007. Third turn position in teacher talk: contingency and the work of teaching. *Journal of Pragmatics*, 39 (6), 1204–1230.
- Lee, Y.-A. 2010. Learning in the contingency of talk-in-interaction. *Text & Talk*, 30 (4), 403–422.
- Lehtimaja, I. 2012. *Puheen suuntia luokkahuoneessa: oppilaat osallistujina yläkoulun suomi toisena kielenä -tunnilla*. Doctoral dissertation. University of Helsinki, Finland.
- Lemke, J. L. 1990. *Talking Science: Language, Learning, and Values*. Norwood, N.J.: Ablex.
- Lemke, J. L. 2000. Across the scales of time: artifacts, activities, and meanings in ecosocial systems. *Mind, Culture, and Activity*, 7 (4), 273–290.
- Lemke, J. L. 2002. Language development and identity: multiple timescales in the social ecology of learning. In C. J. Kramsch (ed.), *Language Acquisition and Language Socialization: Ecological Perspectives* (pp. 68–87). London: Continuum.
- Lerner, G. H. 1993. Collectivities in action: establishing the relevance of conjoined participation in conversation. *Text - Interdisciplinary Journal for the Study of Discourse*, 13 (2), 213–245.
- Lerner, G. H. 1995. Turn design and the organization of participation in instructional activities. *Discourse Processes*, 19, 111–131.

- Lerner, G. H. 2003. Selecting next speaker: the context-sensitive operation of a context-free organization. *Language in Society*, 32 (2), 177–201.
- Levinson, S. C. 2006. Cognition at the heart of human interaction. *Discourse Studies*, 8 (1), 85–93.
- Levinson, S. C. 2012. Action formation and ascription. In J. Sidnell & T. Stivers (eds.), *The Handbook of Conversation Analysis* (pp. 103–130). Chichester: Wiley-Blackwell.
- Lilja, N. 2010. *Ongelmista oppimiseen: toisen aloittamat korjausjaksot kakkoskielisessä keskustelussa*. Jyväskylä studies in humanities 146. University of Jyväskylä, Finland.
- Lindwall, O. & Lymer, G. 2008. The dark matter of lab work: illuminating the negotiation of disciplined perception in mechanics. *Journal of the Learning Sciences*, 17 (2), 180–224.
- Llinares, A. & Morton, T. 2010. Historical explanations as situated practice in Content and Language Integrated Learning. *Classroom Discourse*, 1 (1), 46–65.
- Lobato, J. 2003. How design experiments can inform a rethinking of transfer and vice versa. *Educational Researcher*, 32 (1), 17–20.
- Lobato, J. 2006. Alternative perspectives on the transfer of learning: history, issues, and challenges for future research. *Journal of the Learning Sciences*, 15 (4), 431–449.
- Local, J., Auer, P. & Drew, P. 2010. Retrieving, redoing and resuscitating turns in conversation. In D. Barth-Weingarten, E. Reber & M. Selting (eds.), *Prosody in Interaction* (pp. 131–159). Amsterdam: John Benjamins.
- Lomax, H. & Casey, N. 1998. Recording social life: reflexivity and video methodology. *Sociological Research Online*, 3 (2).
- Long, M. H. 1981. Input, interaction, and second language acquisition. In H. Winitz (ed.), *Native Language and Foreign Language Acquisition* (pp. 259–278). Annals of the New York Academy of Sciences, Vol. 379.
- Long, M. H. 1983a. Linguistic and conversational adjustments to non-native speakers. *Studies in Second Language Acquisition*, 5 (2), 177–193.
- Long, M. H. 1983b. Native speaker/non-native speaker conversation and the negotiation of comprehensible input. *Applied Linguistics*, 4 (2), 126–141.
- Long, M. H. 1991. Focus on form: a design feature in language teaching methodology. In K. de Bot, R. B. Ginsberg & C. Kramsch (eds.), *Foreign Language Research in Cross-Cultural Perspective* (pp. 39–52). Amsterdam: John Benjamins.
- Long, M. H. 1996. The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (eds.), *Handbook of Second Language Acquisition* (pp. 413–468). San Diego: Academic Press.
- Long, M. H. & Sato, C. J. 1983. Classroom foreigner talk discourse: forms and functions of teachers' questions. In H. W. Seliger & M. Long (eds.), *Classroom Oriented Research in Second Language Acquisition* (pp. 268–285). Rowley, MA: Newbury House.
- Lyster, R. 2007. *Learning and Teaching Languages Through Content: A Counterbalanced Approach*. Amsterdam: John Benjamins.

- Lyster, R. & Mori, H. 2006. Interactional feedback and instructional counterbalance. *Studies in Second Language Acquisition*, 28 (2), 269–300.
- Lyster, R. & Ranta, L. 1997. Corrective feedback and learner uptake: negotiation of form in communicative classrooms. *Studies in Second Language Acquisition*, 19 (1), 37–66.
- Macbeth, D. 2003. Hugh Mehan's learning lessons reconsidered: on the differences between the naturalistic and critical analysis of classroom discourse. *American Educational Research Journal*, 40 (1), 239–280.
- Macbeth, D. 2004. The relevance of repair for classroom correction. *Language in Society*, 33 (5), 703–736.
- Macbeth, D. 2011. Understanding understanding as an instructional matter. *Journal of Pragmatics*, 43 (2), 438–451.
- Majlesi, A. R. & Broth, M. 2012. Emergent learnables in second language classroom interaction. *Learning, Culture and Social Interaction*, 1 (3-4), 193–207.
- Margutti, P. 2006. "Are you human beings?" Order and knowledge construction through questioning in primary classroom interaction. *Linguistics and Education*, 17 (4), 313–346.
- Margutti, P. 2010. On designedly incomplete utterances: what counts as learning for teachers and students in primary classroom interaction. *Research on Language and Social Interaction*, 43 (4), 315–345.
- Margutti, P. & Piirainen-Marsh, A. 2011. The interactional management of discipline and morality in the classroom: an introduction. *Linguistics and Education*, 22 (4), 305–309.
- Markee, N. 2005. The organization of off-task talk in second language classrooms. In K. Richards & P. Seedhouse (eds.), *Applying Conversation Analysis* (pp. 197–213). Basingstoke: Palgrave Macmillan.
- Markee, N. 2008. Toward a learning behavior tracking methodology for CA-for-SLA. *Applied Linguistics*, 29 (3), 404–427.
- Markee, N. & Kasper, G. 2004. Classroom talks: an introduction. *Modern Language Journal*, 88 (4), 491–500.
- Markee, N. & Seo, M.-S. 2009. Learning talk analysis. *International Review of Applied Linguistics in Language Teaching*, 47 (1), 37–63.
- Martin, C. 2009. Relevance of situational context in studying learning as changing participation. *Scandinavian Journal of Educational Research*, 53 (2), 133–149.
- Marton, F. 2006. Sameness and difference in transfer. *Journal of the Learning Sciences*, 15 (4), 499–535.
- Marton, F. 2009. Beyond learning as changing participation. *Scandinavian Journal of Educational Research*, 53 (2), 211–215.
- Maynard, D. W. 2006. Ethnography and conversation analysis. In S. N. Hesse-Biber & P. Leavy (eds.), *Emergent Methods in Social Research* (pp. 55–94). London: SAGE.
- Mchoul, A. 1978. The organization of turns at formal talk in the classroom. *Language in Society*, 7 (2), 183–213.
- Mehan, H. 1979a. "What time is it, Denise?": asking known information questions in classroom discourse. *Theory into Practice*, 18 (4), 285–294.

- Mehan, H. 1979b. *Learning Lessons: Social Organization in the Classroom*. Cambridge: Harvard University Press.
- Melander, H. 2009. *Trajectories of Learning: Embodied Interaction in Change*. Uppsala studies in education 124. University of Uppsala, Sweden.
- Melander, H. 2012. Transformations of knowledge within a peer group. Knowing and learning in interaction. *Learning, Culture and Social Interaction*, 1 (3-4), 232-248.
- Melander, H. & Sahlström, F. 2009a. Learning to fly: the progressive development of situation awareness. *Scandinavian Journal of Educational Research*, 53 (2), 151-166.
- Melander, H. & Sahlström, F. 2009b. In tow of the blue whale: learning as interactional changes in topical orientation. *Journal of Pragmatics*, 41 (8), 1519-1537.
- Mercer, N. 2000. *Words and Minds: How We Use Language to Think Together*. London: Routledge.
- Mercer, N. & Littleton, K. 2007. *Dialogue and the Development of Children's Thinking: A Sociocultural Approach*. London: Routledge.
- Monahan, T. & Fisher, J. A. 2010. Benefits of "observer effects": lessons from the field. *Qualitative research*, 10 (3), 357-376.
- Mondada, L. 2007. Multimodal resources for turn-taking: pointing and the emergence of possible next speakers. *Discourse Studies*, 9 (2), 194-225.
- Mondada, L. & Pekarek Doehler, S. 2004. Second language acquisition as situated practice: task accomplishment in the French second language classroom. *Modern Language Journal*, 88 (4), 501-518.
- Moore, E. & Dooly, M. 2010. "How do the apples reproduce (themselves)?" How teacher trainees negotiate language, content, and membership in a CLIL science education classroom at a multilingual university. *Journal of Language, Identity and Education*, 9 (1), 58-79.
- Mori, J. 2004. Negotiating sequential boundaries and learning opportunities: a case from a Japanese language classroom. *Modern Language Journal*, 88 (4), 536-550.
- Mori, J. 2007. Border crossings? Exploring the intersection of second language acquisition, conversation analysis, and foreign language pedagogy. *Modern Language Journal*, 91 (5), 849-862.
- Mori, J. & Hasegawa, A. 2009. Doing being a foreign language learner in a classroom: embodiment of cognitive states as social events. *International Review of Applied Linguistics*, 47 (1), 65-94.
- Mori, J. & Markee, N. 2009. Language learning, cognition, and interactional practices: an introduction. *International Review of Applied Linguistics in Language Teaching*, 47 (1), 1-9.
- Mortensen, K. 2011. Doing word explanation in interaction. In G. Pallotti & J. Wagner (eds.), *L2 Learning as Social Practice: Conversation-analytic perspectives* (pp. 135-162). Honolulu: National Foreign Language Resource Center.
- Mortensen, K. & Hazel, S. 2011. Initiating round robins in the L2 classroom - preliminary observations. *Novitas-ROYAL*, 5 (1), 55-70.

- Morton, T. 2009. Integrating language and content in secondary CLIL history: the potential of a genre-based approach. In M. L. Carrió-Pastor (ed.), *Content and Language Integrated Learning: Cultural Diversity* (pp. 133–148). Bern: Peter Lang.
- Morton, T. 2010. Using a genre-based approach to integrating content and language in CLIL. In C. Dalton-Puffer, T. Nikula & Smit Ute (eds.), *Language Use and Language Learning in CLIL Classrooms* (pp. 81–104). Amsterdam: John Benjamins.
- Mushin, I. 2013. Making knowledge visible in discourse: implications for the study of linguistic evidentiality. *Discourse Studies*, 15 (5), 627–645.
- Nassaji, H. & Wells, G. 2000. What's the use of "triadic dialogue"?: an investigation of teacher-student interaction. *Applied Linguistics*, 21 (3), 376–406.
- Nguyen, H. T. 2011. Achieving recipient design longitudinally: evidence from a pharmacy intern in patient consultations. In J. K. Hall, J. Hellermann & S. Pekarek Doehler (eds.), *L2 Interactional Competence and Development* (pp. 173–205). Bristol: Multilingual Matters.
- Nicholas, H., Lightbown, P. M. & Spada, N. 2001. Recasts as feedback to language learners. *Language Learning*, 51 (4), 719–758.
- Nikula, T. 2007a. The IRF pattern and space for interaction: comparing CLIL and EFL classrooms. In C. Dalton-Puffer & Smit Ute (eds.), *Empirical Perspectives on CLIL Classroom Discourse* (pp. 179–204). Frankfurt: Peter Lang.
- Nikula, T. 2007b. Speaking English in Finnish content-based classrooms. *World Englishes*, 26 (2), 206–223.
- Nikula, T. 2008. Learning pragmatics in content-based classrooms. In E. Alcón Soler & A. Martínez-Flor (eds.), *Investigating Pragmatics in Foreign Language Learning, Teaching and Testing* (pp. 94–113). Bristol: Multilingual Matters.
- Nikula, T. 2012. On the role of peer discussions in the learning of subject-specific language use in CLIL. In E. Alcón-Soler & M. P. Safont-Jordá (eds.), *Discourse and Language Learning Across L2 Instructional Settings* (pp. 133–153). Amsterdam: Rodopi.
- Nikula, T., Dalton-Puffer, C. & Llinares, A. 2013. CLIL classroom discourse: research from Europe. *Journal of Immersion and Content-Based Language*, 1 (1), 70–100.
- Nikula, T., Dalton-Puffer, C., Llinares, A. & Lorenzo, F. More than two sides: the complexity of content and language integration [in preparation]. In T. Nikula, E. Dafouz, P. Moore & U. Smit (eds.) *Integration in CLIL and Multilingual Education: Interfaces and Convergences*.
- Nystrand, M. 1997. *Opening dialogue: understanding the Dynamics of Language and Learning in the English Classroom*. New York: Teachers College Press.
- Payne, G. & Hustler, D. 1980. Teaching the class: the practical management of a cohort. *British Journal of Sociology of Education*, 1 (1), 49–66.
- Pekarek Doehler, S. 2010. Conceptual changes and methodological challenges: on language and learning from a conversation analytic perspective on SLA. In

- P. Seedhouse, S. Walsh & C. Jenks (eds.), *Conceptualising "Learning" in Applied Linguistics* (pp. 105–126). Basingstoke: Palgrave Macmillan.
- Pekarek Doehler, S. & Ziegler, G. 2007. Doing language, doing science and the sequential organization of the immersion classroom. In Z. Hua, P. Seedhouse, L. Wei & V. Cook (eds.), *Language Learning and Teaching as Social Inter-action* (pp. 72–86). Basingstoke: Palgrave Macmillan.
- Piirainen-Marsh, A. & Tainio, L. 2009a. Collaborative game-play as a site for participation and situated learning of a second language. *Scandinavian Journal of Educational Research*, 53 (2), 167–183.
- Piirainen-Marsh, A. & Tainio, L. 2009b. Other-repetition as a resource for participation in the activity of playing a video game. *Modern Language Journal*, 93 (2), 153–169.
- Pike, K. 1967. *Language in relation to a Unified Theory of the Structure of Human Behavior* (2nd. ed.). The Hague: Mouton.
- Pollner, M. 1987. *Mundane Reason: Reality in Everyday and Sociological Discourse*. Cambridge: Cambridge University Press.
- Pomerantz, A. 1980. Telling my side: "limited access" as a "fishing" device. *Sociological inquiry*, 50 (3-4), 186–198.
- Pomerantz, A. 1984a. Agreeing and disagreeing with assessments: some features of preferred/dispreferred turn shapes. In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 57–101). Cambridge: Cambridge University Press.
- Pomerantz, A. 1984b. Pursuing a response. In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 152–164). Cambridge: Cambridge University Press.
- Potter, J. 2006. Cognition and conversation. *Discourse Studies*, 8 (1), 131–140.
- Psathas, G. 1995. *Conversation Analysis: the Study of Talk-in-interaction*. Thousand Oaks (California): SAGE.
- Pyers, J. E. 2006. Constructing the social mind: language and false-belief understanding. In N. J. Enfield & S. C. Levinson (eds.), *Roots of Human Sociality: Culture, Cognition and Interaction* (pp. 207–228). Oxford: Berg.
- Quirk, R., Greenbaum, S., Leech, G. & Svartvik, J. 1985. *A Comprehensive Grammar of the English Language*. London: Longman.
- Raevaara, L. 2004. "Mitäs me sovittais": s-partikkelin sisältävien hakukysymysten tehtävistä. *Virittäjä*, (4), 531–558.
- Rampton, B. 2006. *Language in Late Modernity: Interaction in an Urban School*. Cambridge: Cambridge University Press.
- Rolin-Ianziti, J. 2010. The organization of delayed second language correction. *Language Teaching Research*, 14 (2), 183–206.
- Sacks, H. 1984. On doing "being ordinary". In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 413–429). Cambridge: Cambridge University Press.
- Sacks, H. 1992a. *Lectures on conversation: Volume I*. Oxford: Blackwell.
- Sacks, H. 1992b. *Lectures on conversation: Volume II*. Oxford: Blackwell.

- Sacks, H. & Schegloff, E. 1979. Two preferences in the organization of reference to persons in conversation and their interaction. In G. Psathas (ed.), *Everyday Language: Studies in Ethnomethodology* (pp. 15–21). New York: Irvington.
- Sacks, H., Schegloff, E. & Jefferson, G. 1974. A simplest systematics for the organization of turn-taking for conversation. *Language*, 50 (4), 696–735.
- Sahlström, F. 1999. *Up the Hill Backwards: on Interactional Constraints and Affordances for Equity-Constitution in the Classrooms of the Swedish Comprehensive School*. Uppsala studies in education 85. Uppsala University, Sweden.
- Sahlström, F. 2009. Conversation analysis as a way of studying learning - an introduction to a special issue of SJER. *Scandinavian Journal of Educational Research*, 53 (2), 103–111.
- Sahlström, F. 2011. Learning as social action. In J. K. Hall, J. Hellermann & S. Pekarek Doehler (eds.), *L2 Interactional Competence and Development* (pp. 45–65). Bristol: Multilingual Matters.
- Savijärvi, M. 2011. *Yhteisestä toiminnasta yhteiseen kieleen: keskustelunanalyttinen tutkimus toisen kielen oppimisesta kielikylpypäiväkodin arkitilanteissa*. Doctoral dissertation. University of Helsinki, Finland.
- Schegloff, E. 1968. Sequencing in conversational openings. *American Anthropologist*, 70 (6), 1075–1095.
- Schegloff, E. 1972. Notes on a conversational practice: formulating place. In D. Sudnow (ed.), *Studies in Social Interaction* (pp. 75–119). New York: Free Press.
- Schegloff, E. 1979. Identification and recognition in telephone conversation openings. In G. Psathas (ed.), *Everyday Language: Studies in Ethnomethodology* (pp. 23–78). New York: Irvington.
- Schegloff, E. 1984. On some questions and ambiguities in conversation. In J. M. Atkinson & J. Heritage (eds.), *Structures of Social Action: Studies in Conversation Analysis* (pp. 28–52). Cambridge: Cambridge University Press.
- Schegloff, E. 1991. Conversation analysis and socially shared cognition. In L. B. Resnick, J. M. Levine & S. D. Teasley (eds.), *Perspectives on Socially Shared Cognition* (pp. 150–171). Washington DC: American Psychological Association.
- Schegloff, E. 1992. Repair after next turn: the last structurally provided defense of intersubjectivity in conversation. *American Journal of Sociology*, 97 (5), 1295–1345.
- Schegloff, E. 1993. Reflections on quantification in the study of conversation. *Research on Language and Social Interaction*, 26 (1), 99–128.
- Schegloff, E. 1996a. Confirming allusions: toward an empirical account of action. *American Journal of Sociology*, 102 (1), 161–216.
- Schegloff, E. 1996b. Turn organization: one intersection of grammar and interaction. In E. Ochs, E. Schegloff & S. A. Thompson (eds.), *Interaction and Grammar* (pp. 52–133). Cambridge: Cambridge University Press.
- Schegloff, E. 1997a. Whose text? Whose context? *Discourse & Society*, 8 (2), 165–187.

- Schegloff, E. 1997b. Practices and actions: boundary cases of other-initiated repair. *Discourse Processes*, 23 (3), 499–545.
- Schegloff, E. 1998. Body torque. *Social Research*, 65 (3), 535–596.
- Schegloff, E. 2000. When “others” initiate repair. *Applied Linguistics*, 21 (2), 205–243.
- Schegloff, E. 2006. On possibles. *Discourse Studies*, 8 (1), 141–157.
- Schegloff, E. 2007. *Sequence Organization in Interaction: A Primer in Conversation Analysis*. Cambridge: Cambridge University Press.
- Schegloff, E. 2010. Commentary on Stivers and Rossano: “Mobilizing response.” *Research on Language and Social Interaction*, 43 (1), 38–48.
- Schegloff, E., Jefferson, G. & Sacks, H. 1977. The preference for self-correction in the organization of repair in conversation. *Language*, 53 (2), 361–382.
- Schegloff, E. & Sacks, H. 1973. Opening up closings. *Semiotica*, 49 (638), 289–327.
- Schleppegrell, M. 2004. *The Language of Schooling: A Functional Linguistics Perspective*. Mahwah (NJ): Lawrence Erlbaum.
- Schleppegrell, M., Achugar, M. & Oteiza, T. 2010. The grammar of history: enhancing instruction through a content-based functional focus on language. *TESOL Quarterly*, 38 (1), 67–93.
- Schleppegrell, M. & de Oliveira, L. C. 2006. An integrated language and content approach for history teachers. *Journal of English for Academic Purposes*, 5 (4), 254–268.
- Schmidt, R. W. 1990. The role of consciousness in second language learning. *Applied Linguistics*, 11 (2), 129–158.
- Searle, J. R. 1975. Indirect speech acts. In P. Cole & J. Morgan (eds), *Syntax and Semantics*, Vol. 3 (pp. 59–82). New York: Academic Press.
- Seedhouse, P. 2004. *The Interactional Architecture of the Language Classroom: A Conversation Analysis Perspective*. Malden, MA: Blackwell.
- Seedhouse, P. 2005. “Task” as research construct. *Language Learning*, 55 (3), 533–570.
- Seedhouse, P. 2006. Conversation analysis and language learning. *Language Teaching*, 38 (4), 165.
- Seedhouse, P. 2010. Locusts, snowflakes and recasts: complexity theory and spoken interaction. *Classroom Discourse*, 1 (1), 4–24.
- Seedhouse, P. & Walsh, S. 2010. Learning a second language through classroom interaction. In P. Seedhouse, S. Walsh & C. Jenks (eds.), *Conceptualising “Learning” in Applied Linguistics* (pp. 127–146). Basingstoke: Palgrave Macmillan.
- Sert, O. 2011. *A Micro-analytic Investigation of Claims of Insufficient Knowledge in EAL Classrooms*. Unpublished doctoral dissertation. University of Newcastle, UK.
- Sert, O. 2013. “Epistemic status check” as an interactional phenomenon in instructed learning settings. *Journal of Pragmatics*, 45 (1), 13–28.
- Sfard, A. 1998. On two metaphors for learning and the dangers of choosing just one. *Educational researcher*, 27 (2), 4–13.

- Sheen, Y. 2004. Corrective feedback and learner uptake in communicative classrooms across instructional settings. *Language Teaching Research*, 8 (3), 263–300.
- Sidnell, J. 2012. Declaratives, questioning, defeasibility. *Research on Language and Social Interaction*, 45 (1), 53–60.
- Siitonen, P., Wahlberg, K.-E. & Karjalainen, M. 2013. Responssin puuttuminen perheneuvottelussa. *Puhe ja kieli*, 32 (3), 103–126.
- Skinnari, K. 2012. "Tässä ryhmässä olen aika hyvä". Ekologinen näkökulma kielenoppijaidentiteetteihin peruskoulun viidennen ja kuudennen luokan englannin opetuksessa. *Jyväskylä studies in humanities* 188. University of Jyväskylä, Finland.
- Slotte-Lüttge, A. 2005. *Ja vet int va de heter på svenska: interaktion mellan tvåspråkiga elever och deras lärare i en enspråkig klassrumsdiskurs*. Doctoral dissertation. Åbo Akademi, Finland.
- Slotte-Lüttge, A., Pörn, M. & Sahlström, F. 2012. Learning how to be a "tähti": a case study of language development in everyday situations of a 7-year-old multilingual Finnish child. *International Journal of Bilingualism*, 17 (2), 153–173.
- Smit, U. 2010. *English as a Lingua Franca in Higher Education: A Longitudinal Study of Classroom Discourse*. Berlin: De Gruyter Mouton.
- Sorjonen, M.-L. 1989. Vuoronalkuiset konnektorit: mutta. In A. Hakulinen (ed.), *Suomalaisen keskustelun keinoja 1* (pp. 162–176). Helsinki: Helsingin yliopisto.
- Sorjonen, M.-L. 2001. *Responding in Conversation: A Study of Response Particles in Finnish*. Amsterdam: John Benjamins.
- Sorjonen, M.-L. & Laakso, M. 2005. Katko vai eiku? itsekorjauksen aloitustavat ja vuorovaikutustehtävät. *Virittäjä*, (2), 244–271.
- Stevanovic, M. & Peräkylä, A. 2012. Deontic authority in interaction: the right to announce, propose, and decide. *Research on Language and Social Interaction*, 45 (3), 297–321.
- Stivers, T. 2008. Stance, alignment, and affiliation during storytelling: when nodding is a token of affiliation. *Research on Language and Social Interaction*, 41 (1), 31–57.
- Stivers, T., Mondada, L. & Steensig, J. (eds.) 2011a. *The Morality of Knowledge in Conversation*. Cambridge: Cambridge University Press.
- Stivers, T., Mondada, L. & Steensig, J. 2011b. Knowledge, morality and affiliation in social interaction. In T. Stivers, L. Mondada & J. Steensig (eds.), *The Morality of Knowledge in Conversation* (pp. 3–24). Cambridge: Cambridge University Press.
- Stivers, T. & Robinson, J. D. 2006. A preference for progressivity in interaction. *Language in Society*, 35 (3), 367–392.
- Stivers, T. & Rossano, F. 2010a. Mobilizing response. *Research on Language and Social Interaction*, 43 (1), 3–31.
- Stivers, T. & Rossano, F. 2010b. A scalar view of response relevance. *Research on Language and Social Interaction*, 43 (1), 49–56.

- Stivers, T. & Sidnell, J. 2005. Introduction: multimodal interaction. *Semiotica*, 2005 (156), 1–20.
- Streeck, J., Goodwin, C. & LeBaron, C. 2011. Embodied interaction in the material world: an introduction. In J. Streeck, C. Goodwin & C. LeBaron (eds.), *Embodied Interaction: Language and Body in the Material World* (pp. 1–26). Cambridge: Cambridge University Press.
- Swain, M. & Lapkin, S. 1995. Problems in output and the cognitive processes they generate: a step towards second language learning. *Applied Linguistics*, 16 (3), 371–391.
- Svennevig, J. 2008. Trying the easiest solution first in other-initiation of repair. *Journal of Pragmatics*, 40 (2), 333–348.
- Szymanski, M. H. 1999. Re-engaging and dis-engaging talk in activity. *Language in Society*, 28 (1), 1–23.
- Szymanski, M. H., Vinkhuyzen, E., Aoki, P. M. & Woodruff, A. 2006. Organizing a remote state of incipient talk: push-to-talk mobile radio interaction. *Language in Society*, 35 (3), 393–418.
- Tainio, L. 2011. Gendered address terms in reproach sequences in classroom interaction. *Linguistics and Education*, 22 (4), 330–347.
- ten Have, P. 1990. Methodological issues in conversation analysis. *Bulletin de Méthodologie Sociologique*, 27 (1), 23–51.
- ten Have, P. 2007. *Doing Conversation Analysis*. London: SAGE.
- Terasaki, A. K. 2004. Pre-announcement sequences in conversation. In G. Lerner (ed.), *Conversation Analysis: Studies From the First Generation* (pp. 171–223). Philadelphia, PA: John Benjamins.
- Tomasello, M. 2003. *Constructing a Language: A Usage-based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press.
- Unsworth, L. 2000. Investigating subject-specific literacies in school learning. In L. Unsworth (ed.), *Researching Language in Schools and Communities: Functional Linguistic Perspectives* (pp. 245–274). London: Cassell.
- van Compernelle, R. A. 2010. Incidental microgenetic development in second-language teacher-learner talk-in-interaction. *Classroom Discourse*, 1 (1), 66–81.
- van Lier, L. 2000. From input to affordance: social-interactive learning from an ecological perspective. In J. P. Lantolf (ed.), *Sociocultural Theory and Second Language Learning* (pp. 245–259). Oxford: Oxford University Press.
- van Lier, L. 2002. An ecological-semiotic perspective on language and linguistics. In C. Kramsch (ed.), *Language Acquisition and Language Socialization: Ecological Perspectives* (pp. 140–172). London: Continuum.
- van Lier, L. 2004. *The Ecology and Semiotics of Language Learning: A Sociocultural Perspective*. Boston: Kluwer Academic.
- Van Patten, B. & Benati, A. G. 2010. *Key Terms in Second Language Acquisition*. London: Continuum.
- Veel, R. 1997. Learning how to mean - scientifically speaking: apprenticeship into scientific discourse in the secondary school. In F. Christie & J. R. Martin

- (eds.), *Genre and Institutions: Social Processes in the Workplace and School* (pp. 161–195). New York: Cassell.
- Veel, R. & Coffin, C. 1996. Learning to think like an historian: the language of secondary school history. In R. Hasan & G. Williams (eds.), *Literacy in Society* (pp. 191–231). London: Longman.
- Vehviläinen, S. 2009. Problems in the research problem: critical feedback and resistance in academic supervision. *Scandinavian Journal of Educational Research*, 53 (2), 185–201.
- VISK = Auli Hakulinen, Maria Vilkuna, Riitta Korhonen, Vesa Koivisto, Tarja Riitta Heinonen & Irja Alho (2004). Iso suomen kielioppi. Available at <http://scripta.kotus.fi/visk> [accessed June 10, 2013].
- Wagner, J. 2004. Commentaries: the classroom and beyond. *Modern Language Journal*, 88 (4), 612–616.
- Wagner, J. 2013. Commentary to panel "Longitudinal research in CA-SLA: learning language in and through interaction". At conference *Thinking, Doing, Learning: Usage Based Perspectives on Second Language Learning*. Odense, Denmark, April 24–26, 2013.
- Walsh, S. 2006. *Investigating Classroom Discourse*. Abingdon, Oxon: Routledge.
- Waring, H. Z. 2011. Learner initiatives and learning opportunities in the language classroom. *Classroom Discourse*, 2 (2), 201–218.
- Weatherall, A. 2011. I don't know as a prepositioned epistemic hedge. *Research on Language and Social Interaction*, 44 (4), 317–337.
- Wetherell, M. 1998. Positioning and interpretative repertoires: conversation analysis and post-structuralism in dialogue. *Discourse & Society*, 9 (3), 387–412.
- Young, R. F. & Miller, E. R. 2004. Learning as changing participation: discourse roles in ESL writing conferences. *Modern Language Journal*, 88 (4), 519–535.

APPENDIX 1: TRANSCRIPTION SYMBOLS

The transcription symbols follow with minor adjustments standard CA transcription conventions, listed for example in Jefferson (2004a).

wo::rd	prolonged sound
(.)	a (micro)silence less than 0.5 seconds
(2.0)	approximate duration of a silence longer than 0.5 seconds
(word)	uncertain or dubious transcription
(xx)	unrecognizable talk
((word))	transcriber's descriptions
wo-	cut-off
[]	beginning and end of overlapping talk
{CAPS	embodied actions and their placement relative to talk
<word>	slower pace than in surrounding talk
>word<	faster pace than in surrounding talk
°word°	talk produced quieter than surrounding talk
WORD	talk that is louder than surrounding talk
<u>word</u>	emphasised talk
fwordf	talk produced with smiley voice
@word@	talk produced with modified voice
w(h)ord	laughingly produced talk
//	beginning and end of phonetic (IPA) transcription
,	continuing intonation at the end of a prosodic entity
.	falling intonation at the end of a prosodic entity
?	rising intonation at the end of a prosodic entity
↑ ↓	significant change in pitch height
.hhh	an audible inbreath
hhh	an audible outbreath
=	latched utterances
<i>italics</i>	English translation of a Finnish turn constructional unit
	separation of two columns to signal parallel (schismed) talk

APPENDIX 2: FORM FOR OBTAINING INFORMED CONSENT



Jyväskylässä

02.11.2010

SOPIMUS TUTKIMUSAINIESTON KÄYTTÖOIKEUKSISTA

Tutkimushanke: Vieraskielisen opetuksen vuorovaikutus

Tässä sopimuksessa tutkimukseen osallistuvan alaikäisen henkilön huoltaja sekä tutkimushankkeen edustajat sopivat kerättävän tutkimusaineiston käyttöoikeuksista. Allekirjoitetulla sopimuksella tutkimukseen osallistuvan henkilön huoltaja antaa suostumuksensa huollettavan henkilön osallistumisesta tutkimukseen ja luovuttaa tutkimushankkeelle alla eriteltyt oikeudet tutkimusaineiston käyttöön.

Tutkimukseen osallistuvan alaikäisen henkilön huoltaja on lukenut, ymmärtänyt sekä hyväksynyt seuraavat kohdat

- Tutkimuksessa kerätty aineisto tulee ensisijaisesti yllämainitun tutkimushankkeen käyttöön, mutta on käytettävissä myös muissa Soveltavan kielentutkimuksen keskuksen ja Jyväskylän yliopiston kielten laitoksen vastaavissa tutkimushankkeissa
- Tutkimukseen osallistuminen perustuu vapaaehtoisuuteen
- Tutkimushenkilöiden anonymiteetti turvataan tutkimuksen kirjallisessa raportoinnissa sekä tutkimusaineistosta ja tutkimuksen tuloksista puhuttaessa
- Käytettäessä video- ja/tai kuva-aineistoa (mukaan lukien videoilta kaapatut kuvat sekä niiden pohjalta tehdyt piirroksot) tutkimushenkilön kasvot ja ääni jäävät kuitenkin tunnistettaviksi, ellei tutkimushenkilön huoltaja halua tätä erikseen kieltää
- Tutkimuksen tuloksia julkaistaan ja niistä raportoidaan tieteellisissä julkaisuissa sekä tieteellisissä konferensseissa
- Osia tutkimusaineistosta (mukaan lukien videoleikkeet, kuvat sekä videoilta kaapatut kuvat tai niiden pohjalta tehdyt piirroksot, kopiot oppilaiden tunneilla tekemistä oppimistehtävistä ja mahdolliset haastatteluaineistot) voidaan käyttää esimerkiksi elektronisissa julkaisuissa tai esitelmissä tms.
- Tutkimusaineistoa voidaan käyttää myös opetustilanteissa sekä tutkimushankkeeseen liittyvien väitöskirja- ja opinnäytetöiden tekemiseen
- Aineisto arkistoidaan Jyväskylän yliopiston Soveltavan kielentutkimuksen keskuksessa ja kielten laitoksella
- Tutkimukseen osallistuvan henkilön huoltaja voi vetää huollettavansa pois tutkimuksesta kesken aineistonkeruun; lisäksi huoltajalla on täysi oikeus perua huollettavaansa koskevan aineiston käyttöoikeus myös jälkikäteen
- Tutkimukseen osallistuneen alaikäisen tultua täysi-ikäiseksi siirtyvät oikeudet tutkimuksesta vetäytymiselle ja aineiston käytön kieltämisestä suoraan hänelle

Tutkimusryhmät sitoutuvat omalta osaltaan

- Käsittelemään tutkimusaineistoa sekä -tuloksia luottamuksellisesti
- Säilyttämään kerätyn tutkimusaineiston siten, että ulkopuolisilla ei ole siihen pääsyä
- Takaamaan tutkimukseen osallistuneiden anonymiteetin tutkimuksen kirjallises-
sa raportoinnissa sekä tutkimusaineistosta ja tutkimuksen tuloksista puhuttaessa
- Muuttamaan julkisesti esitettävissä videoissa ja/tai kuvissa tutkimukseen osallis-
tujan ääntä ja/tai sumentamaan hänen kasvonsa, jos osallistujan huoltaja näin
erikseen vaatii
- Huolehtimaan, että kaikki tutkimusaineiston käyttäjät (mukaan lukien mahdolli-
set opinnäytetöiden tekijät) sitoutuvat tässä sopimuksessa todettuihin käyttöoi-
keuksiin ja salassapitovelvollisuuksiin
- Luopumaan aineiston käytöstä, jos tutkimukseen osallistujan huoltaja haluaa
keskeyttää huollettavansa osallistumisen tutkimukseen, tai jos huoltaja jälkikä-
teen peruu käyttöoikeuden huollettavaansa koskevaan aineistoon
- Luopumaan aineiston käytöstä, jos alaikäisenä tutkimukseen huoltajansa suos-
tumuksella osallistunut henkilö haluaa täysi-ikäiseksi tultuaan keskeyttää osallis-
tumisensa tutkimukseen, tai kieltää häntä koskevan aineiston käytön

Tätä sopimusta on tehty kaksi samanlaista kappaletta

Vaadin, että huollettavaani ei voi tunnistaa video- ja/tai kuva-aineistolta (mukaan lukien videoilta kaapatut kuvat sekä niiden pohjalta tehdyt piirroks-
set), jos aineistoa esitetään julkisesti (esim. opetuksessa, tieteellisissä julkai-
suissa, kirjoissa, elektronisissa lehdissä, konferensseissa tms.).

Jos alaikäisenä tutkimukseen huoltajansa suostumuksella osallistunut henki-
lö haluaa täysi-ikäiseksi tultuaan vaatia äänensä ja kasvojensa tunnistamat-
tomaksi tekemistä, hän voi tehdä sen myös erillisellä vapaamuotoisella
anomuksella tutkimushankkeelle.

306

Tutkimukseen osallistuvan alaikäisen nimi

Huoltajan allekirjoitus

Nimenselvennys

Yhteystiedot

Tutkimushankkeen puolesta

Tarja Nikula
Professori
Jyväskylän yliopisto

Yhteystiedot

Soveltavan kielentutkimuksen keskus
PL 35
40014 Jyväskylän yliopisto

tarja.nikula@jyu.fi
+358 14 260 3522

Sirpa Leppänen
Professori
Jyväskylän yliopisto

Yhteystiedot

Kielten laitos (P)
PL 35
40014 Jyväskylän yliopisto

sirpa.leppanen@jyu.fi
+358 14 260 1210