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**Teachers' perceptions on the changing role  
of language in the curriculum**

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**Abstract:** This article is concerned with the role of language(s) in education from the viewpoint of secondary school subject teachers in Finland at the time of transition to a new curriculum. The curriculum highlights the role of language throughout education and makes reference to changes in society that foreground multilingualism. Seven mainstream and CLIL content teachers of different subjects were interviewed and employing qualitative content analysis, the data were scrutinised under four language-related themes: multilingualism, multiliteracy, subject-specific language, and the role of language in knowledge construction. The results indicate teachers as reasonably well aware of subject-specific language of their field and of the value of multiliteracy practices. Multilingualism as the diversity of students' languages and its impact on pedagogical practices received less attention. Overall, the teachers' orientation to the language ideological statements in the new curriculum were widely agreed upon even if the ideas still remained somewhat abstract in the transition phase before actual implementation to the praxis.

**Keywords:** Role of language in education, curriculum change, subject-specific language, multiliteracy, multilingualism, CLIL, teachers' perceptions

## 1 Introduction

As the theme of this thematic issue indicates, the role of language(s) in education is a current topic receiving a great deal of attention. On the one hand, the increasing diversity of students' language backgrounds has forced educational

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institutions in different corners of the world to pay attention to language demands of schooling (e.g. Eschevarria et al. 2009). On the other hand, research fields such as systemic functional linguistics, literacy studies, and bi- and multilingual education studies have increased understanding of the role of language in knowledge construction in different school subjects (e.g. Llinares, Morton and Whittaker 2012; Meyer et al. 2015; Moje 2008; Schleppegrell 2004).

These developments have also become visible in curriculum work, a recent example being the renewed Finnish National Core Curriculum for Basic Education (FNBE 2014/2016) for comprehensive schools (years 1–9), containing the basic values and general guidelines for education. Compared to the previous core curriculum, the new one includes a special emphasis on language (Mustaparta, Nissilä and Harmanen 2015: 7). For example, it introduces the idea that *every teacher is a language teacher*. In addition, also *language sensitivity* and *multilingual schools* become topicalised. Language issues also gain more visibility through the introduction of the notions of *language aware school*, *multiliteracy* and *subject-specific languages*. The curriculum declares: “A community with language-awareness discusses attitudes towards languages and linguistic communities and understands the key importance of language for learning” (FNBE 2014/2016: 29). Furthermore, the linguistic and cultural diversification of student population through increasing migration has led to an added emphasis on the role of language in education in the core curriculum.

These new language emphases are partly due to the changing conditions in society with its increasing diversity and multilingualism which challenge educational planning and practice and foreground language and equality issues (Aalto and Tarnanen 2015). The new curriculum also aligns with the above mentioned views of literacy development as a crucial aim for all schooling, visible for example in the greater emphasis on and recognition of the multimodal and multi-semiotic aspects of meaning-making alongside spoken and written modes.

No new curriculum becomes a lived reality without teachers as agents of change. As pointed out by Nikula, Dalton-Puffer, Llinares and Lorenzo (2016: 14) when discussing the role of content and language integration, participant perspectives have a crucial mediating role as a dimension between curricular planning and actual implementation of its ideals within classrooms. The importance of this mediating role is also reflected in research that focuses on the importance of teachers’ viewpoints, whether conceptualised as ‘beliefs’ (Kalaja and Barcelos 2003), ‘teacher cognition’ (Borg 2006) or ‘teacher experiences’ (Cammarata and Tedick 2012). Based on interview data we will in this article focus on how content teachers reflect on the ideas articulated in the National Core Curriculum of the pervasiveness of language, literacies and multilingualism throughout schooling and on every teacher being a language teacher. The

interview data were collected when schools were in the process of interpreting the general guidelines of the core curriculum and its new ideas as the basis for their school-based curricula. Given this context, we will use the term perception rather than belief to refer to teachers' reflections as situated and evolving understandings.

Subject teachers rather than language teachers were chosen as the target group in order to grasp how the language-related ideologies in the new curriculum are interpreted by professionals who do not necessarily identify themselves as language experts at the outset. In addition to teachers of mainstream schools with Finnish as the instructional language, the data also includes interviews with subject teachers from schools that implement forms of content and language integrated (CLIL) education, i.e. teaching parts of the curriculum through English.

The reasons for examining teachers' language related perceptions at a phase when the new curriculum was not yet in use are twofold. Firstly, we wanted to capture the secondary school teachers' views in a transition phase when they already had familiarised themselves with the core curriculum as they had collectively worked on it in order to produce the local curricula. Zooming in on moments of educational change is important because they may have implications for both quality and equality of education, hence our interest in exploring the renewed ideological viewpoints reflected in the core curriculum and their potential impact on and interplay with subject teacher perceptions and their working practices. As argued by Anderson (1991, cited in Breidbach, Elsner and Young 2011: 12), language awareness begins with teacher language awareness. Furthermore, as Lasagabaster (2017: 254) points out, considering teachers' beliefs at the time of educational reform is important as these are often resistant to change. Secondly, at the time of the launch of the new curriculum, the public discussion in the media revolved around its renewed view on assessment and the growing demand for schools to increase the learning and use of ICT at all educational stages (e.g. Koivuranta 2016; Vitikka 2016). While the new language emphasis received less public attention, we were interested in the extent to which it was a concern for teachers.

## 2 Overview of the Finnish school system and the new core curriculum

Finnish comprehensive education consists of elementary school (years 1–6) and lower secondary school (years 7–9). This article focuses on lower secondary

school stage where subject specialists, holding a M.A. degree, are typically either language or non-language experts who have majored in at least one of their subject fields and completed their pedagogical studies at the university. While teachers are thus specialised in specific subjects, combinations of certain subjects are quite common in teacher profession. For example, it is usual for a mathematics teacher to also teach physics and chemistry, and combinations of biology and geography or history and social studies are also common.

Content and Language Integrated Learning (CLIL) has been implemented since 1991 and has an established position in Finnish educational context but tends to be mainly offered in the bigger cities (Kangasvieri et al. 2012: 55). It is impossible to characterise “Finnish CLIL” due to the heterogeneity of programs, goals and forms of implementations. The majority of bilingual programs, though, have English as the target language. In secondary schools with CLIL streams, instruction is typically given by content teachers, with foreign language lessons taught separately by language specialists.

The core curriculum for comprehensive schools in Finland that comprises the basic values and general guidelines for education is renewed every ten years. The document is complemented by municipality or school-level curricula, which bring in local emphases and additions. Local curriculum work involves teachers and local policy-makers in cooperation producing a document that, in line with the underlying ideologies and transformations in the core curriculum, works as a tool for educational practice. As pointed out above, the Finnish curriculum for general education has been renewed recently (FNBE 2014/2016). The new version has been implemented in elementary schools since autumn 2016, and since autumn 2017 gradually in lower secondary schools (years 7–9). At the time of this study, the old curricula from 2004 were still valid in secondary schools whilst the new municipality-level curricula and action plans of schools were under construction.

As regards the contents of the curriculum it outlines, in addition to learning goals for individual subjects, seven transversal competencies applying throughout schooling: Thinking and learning to learn (T1), Cultural competence, interaction and self-expression (T2), Taking care of oneself and managing daily life (T3), Multiliteracy (T4), ICT Competence (T5), and Working life competence and entrepreneurship (T6). All these should be present at the local curricula level, but there is room for different emphases. Moreover, central general aims in the new curriculum relate (a) to increasing learner centeredness with emphasis on learners’ active engagement and participation, (b) to integrative instruction involving, for example, phenomenon-based thematic teaching and project work across subject boundaries, (c) to continuous, dynamic assessment, and (d) to the so called ‘digi leap’ to increase the learning and use of ICT at all educational stages.

As outlined above, from the perspective of this study, an important new emphasis in the new curriculum concerns the role of language. In addition to the introduction of notions of *language aware school*, *multiliteracy*, *subject-specific languages* and *every teacher being a language teacher*, the core curriculum, for the first time, also discusses bilingual teaching in more detail than in the earlier documents. In essence, this involves laying down the difference between extensive bilingual provision and small-scale language enrichment bilingual education (more than 25 % and less than 25 % of teaching involved, respectively). It is also emphasised in the curriculum that the content goals in CLIL are the same as in L1 teaching and that forms of bilingual education should not curb learners' possibilities to receive qualifications for entering further education in Finland. However, to date the idea of language across the curriculum has not been extensively discussed in the seemingly homogeneous Finnish school policy field.

### 3 On content area literacies and subject-specific language

As pointed out above, the new core curriculum in Finland communicates quite strongly the idea of every teacher being a language teacher of “the language typical of the subject he or she teaches”, draws attention to every subject having its own textual practices, that “open up different viewpoints to the same phenomenon” as well as recognises the need in all subjects for instruction that “progresses from everyday language to the language of conceptual thinking” (FNBE 2014/2016: 29). Such sentiments resonate with the overall trends and developments in curricular thinking and educational discourse that have accorded growing attention to the inherent role that language plays in all learning and the language-based work that educational institutions largely rely on when constructing, disseminating and evaluating knowledge (for an overview, see Nikula et al. 2016).

Internationally, the language-aware orientation to curriculum work has involved designing curricula that, in addition to content-related aims, specify also language-related aims. This work has often taken place in second language contexts, with the goal of supporting the academic language learning of (migrant and/or minority) second language learners. Examples of this include the SIOP (Sheltered Instruction Observation Protocol) project in the US context that seeks to help teachers to pay attention to the simultaneous learning of academic knowledge and language skills (Eschevarria et al. 2009), or the Scopes and Scales design in the Australian curriculum that specifies the language demands that

need to be addressed in subjects to help ESL learners (e.g. Polias 2003). In Europe, the Language Policy division of the Council of Europe has played an active role in drawing attention to the role of language in schooling through its web-based platform ‘Languages in education, languages for education’ which provides materials that can be used to both analyse and construct curricula for language of schooling, either taught as subjects in their own right or used for the teaching of other subjects. Our research orientation and interest in language matters in the curriculum is influenced by such earlier work on curriculum development.

The second branch of research that we draw insights from when addressing the role of language in education is systemic functional linguistics as it has contributed a great deal to the growing awareness of the specificities of language demands in different subjects. In particular, SFL research has revealed the importance of genres and registers in the construction of academic language and meaning in classrooms (e.g. Coffin 2006; Llinares et al. 2012; Schleppegrell 2004). Similar ideas have also been embraced in literacy studies and in educational linguistics, for example, in terms of the development of academic language and/or disciplinary literacy (e.g. Fang 2012; Moje 2008, Zwiers 2006). As Moje (2008: 97) points out, the role of language in disciplinary learning is important for “understanding of how knowledge is produced in the disciplines.” In other words, language and literacy awareness in studying disciplines highlights that rather than being about accumulation of factual knowledge, disciplinary learning is also concerned about “ways of knowing, doing, believing, and communicating that are privileged to those areas” (Moje 2008: 99).

Another field interested in the role of language in education is CLIL, i.e. content and language integrated learning (see e.g. Dalton-Puffer et al. 2010). In recent years, particularly the question of how best to conceptualise the interconnectedness of language and content has received a great deal of attention (e.g. Llinares, Morton and Whittaker 2012; Meyer et al. 2015; Nikula et al. 2016). By definition, this also has implications for how the whole notion of language learning and teaching will be conceptualised in content-based scenarios.

While there seems to be general agreement among curriculum developers and researchers (especially ones exploring contexts that involve teaching in second/foreign languages) of the need to be aware of the language dimension in all teaching, the studies that exist on how teachers respond to this point towards uncertainties. For example, there are studies from immersion and CLIL contexts which indicate that teachers may have mixed feelings of their double role as language and content teachers when it is the former role that they more readily ascribe to and do not necessarily see themselves as ‘language teachers’; there are thus issues relating both to teacher identity and teacher profession involved (e.g.

Cammarata and Tedick 2012; Moate 2011; Skinnari and Bovellan 2016). In a similar vein, Moje (2008: 97) argues that it is commonplace that content teachers “initially reject the idea that they are the best people to teach the conventions of literacy in their disciplines”. Gleeson (2010), having studied secondary teachers' disciplinary beliefs and decisions about teaching academic language in their content classes, concludes that teachers are uncertain of what aspects of language to teach and how. As Nikula (2015: 24) argues about CLIL teachers, such sentiments need to be considered in relation to the conceptualisation of language in play: content teachers need to become aware of their own specific role in language education – different from that of language teachers – in guiding their learners towards content-relevant language and subject literacies. No doubt this concerns any subject teachers but less attention has so far been paid to mainstream teachers from this perspective (but see Aalto and Tarnanen 2015 for language sensitive teacher education).

In sum, the theoretical foundations of this study draw on earlier studies – conducted in curriculum studies, educational linguistics, systemic functional linguistics and in CLIL and immersion research in particular – on the decisions and struggles involved in simultaneous learning and teaching of language and content, and on the notion of academic and disciplinary literacies.

## 4 Participants, data and methods

The data of this small-scale, qualitative study consist of seven lower secondary school (classes 7–9) subject teacher interviews that have been audio-recorded and transcribed. For the interviews, over fifty secondary school teachers of different school subjects in four Finnish small to medium-size towns were contacted in August and September 2016. That only seven teachers agreed to be interviewed and gave their informed consent indicates reluctance to participate. This may have been due to the still ongoing curriculum work. Also, at the time of the interviews, there had not been as much public discussion about the role of language in the new curriculum as, for example, about digitalisation and assessment in schools. One of the participating teachers (T7) suggested that language issues may appear trivial because teachers are not aware of their language use. She, however, expressed her own interest in language in the curriculum and willingness to further reflect upon it in the interview to better find out “what on earth this is about”. Both CLIL and non-CLIL teachers from four schools (S1, S2, S3, S4) were interviewed. The participants are presented in Table 1 below.

**Table 1:** The participants

Teachers	Subjects	School	Teaching experience
T1 (F)	History, Social studies	non-CLIL (S1)	over 20 years
T2 (M)	Mathematics, Physics, Chemistry	non-CLIL (S1)	6 years
T3 (F)	Biology, Geography	CLIL (S2)	over 4 years/ 4 <sup>th</sup> year of CLIL
T4 (F)	Physical Education	CLIL (S2)	over 20 years/ 8 <sup>th</sup> year of CLIL
T5 (F)	Physics, Chemistry	CLIL (S2)	1 year/1 <sup>st</sup> year of CLIL
T6 (F)	History, Social studies	CLIL (S3)	over 15 years/ 15 years of CLIL
T7 (F)	Mathematics, Physics, Chemistry	non-CLIL (S4)	over 10 years

The seven interviews were conducted in October 2016. The duration of the interviews varied from forty-five minutes to one-and-a-half hours. Apart from T7, who preferred to participate in an out-of-school context, all the other interviews were conducted in schools. All the interviews were conducted in Finnish; the data excerpts have been translated into English by the authors. The themes of the discussion (language awareness, multilingualism, subject-specific language and the idea of “every teacher is a language teacher”) were sent to the teachers in advance via e-mail. One of the teachers asked for more detailed information on the topics and she was sent the prompts and questions before the interview. In the interview situations the excerpts from the curriculum were read and then discussed with more specific questions, for example: “Do you consider yourself and your community multilingual?” “How?” and “To what extent do you think you are a language teacher or a language model for your students?”. The teachers were also asked to describe the language of their subject and their language-related practices.

Although preparatory curriculum work had already started at the time of conducting the interviews, the over 500-page document, by necessity, still served as a presentation of quite abstract ideals prior to the actual implementation. Probably for this reason, many of the teachers expressed uncertainty about the upcoming changes. Consequently, rather than following a strict question and answer format, the interviews were more discussion-like, inviting teacher reflection, and based on prompts selected from the core curriculum. For the prompts, all sentences including ‘language’ were first spotted in the curriculum and the passages were selected on the basis of their novelty of ideas in comparison to the earlier curricula or on their emphasis on language education as a concern for all teachers, not only language teachers. The main focus was in the background

section of the core curriculum covering the underlying values, goals and the operating culture of comprehensive basic education. The prompts included language-related statements in chapter 4 (*Operating culture of comprehensive basic education*), more specifically in sub-chapter 4.2 (*Principles that guide the development of the school culture*), and the idea of language education in sub-chapter 13.4.3 (*Foreign languages*). From 'Cultural diversity and language awareness' (p. 29), the next key prompt was selected:

*One manifestation of cultural diversity is multilingualism. Each community and community member is multilingual. Parallel use of various languages in the school's daily life is seen as natural, and languages are appreciated. A community with language-awareness discusses attitudes towards languages and linguistic communities and understands the key importance of language for learning, interaction and cooperation and for the building of identities and socialisation. Each subject has its own language, textual practices and concepts. The languages and symbol systems of different fields of knowledge open up different viewpoints to the same phenomenon. The instruction progresses from everyday language to the language of conceptual thinking. In a language-aware school, each adult is a linguistic model and also a teacher of the language typical of the subject he or she teaches. (FNBE 2014/2016: 29)*

The new core curriculum sees language teaching and learning in the frame of more general language education. This concerns all teachers, not only language teachers. Therefore, the next excerpt was selected as a prompt from a chapter concerning foreign languages (13.4.3):

*Language is a prerequisite for learning and thinking. Language is a part of all school activities, and each teacher is a language instructor. Language learning promotes the development of thinking skills. It provides material for the formation and appreciation of a plurilingual and multicultural identity. (FNBE 2014/2016: 135)*

To sum up, the interview topics were *multilingualism, subject-specific language, academic and everyday language, and teacher as a language teacher and language model*.

The interviews produced about seven hours of audiotaped data, which were transcribed and analysed with qualitative content analysis. Combining concept-driven and data-driven analysis (Krippendorff 2013) in cycles of reading and comparing teachers' perceptions about language in education in the interview data and the pieces of curriculum text discussed, resulted to four language-related main themes: *multilingualism, multiliteracy, subject-specific languages, and the role of language in knowledge construction*. The first three themes were informed by the concepts of the curriculum text prompts and the last one rose from the interview data. These themes will be examined in more detail below.

## 5 Findings

### 5.1 Multilingualism

One of the aims of the study was to probe teachers' views of multilingualism at school. As a result, the teachers brought up multiple understandings of it. Usually they did this from subject-specific perspectives which may be considered unexpected given that such a perspective on language has in research been depicted as something that teachers need more awareness of (e.g. Llinares, et al. 2012; Nikula 2015). Given their familiarity with the new curriculum, the participants were probably informed by its idea of subject-specific languages as a manifestation of multilingualism (FNBE 2014/2016: 29). However, even though one of the teachers (T3) remembered discussing multilingualism in her school community she found it difficult to articulate what it means. In her hesitating answer below, co-constructed with the interviewer (I), she linked multilingualism both to subject-specific languages and multiliteracies:

*T: Does this link, I wonder whether this now links to this multiliteracy and to*

*I: Mm, that as well, yeah*

*T: that if we are here not only talking about languages, but about how every field of science has*

*I: yes, I'm not looking for a correct answer but your interpretation of that, if that has been written in the curriculum, so, so, yes, I think it could have a lot to do with that*

*T: so that, that what we have been thinking here from the point of view of the curriculum, what is the word I said (0.4) that multiliteracy, so in a way, like, multilingualism, like, like every field of science has its own language and you cannot talk about, for example, biology if you don't know the concepts of biology. (T3)*

The hesitation cannot simply be seen as a sign of insecurity but also as an example of how the teachers elaborated on the new ideas in the interview situation.

Overall, the teachers perceived multilingualism as languages of subjects, different languages, multiliteracies, language varieties such as local dialects, students' age-specific ways of talking, and colloquial or academic languages, also connected with their socio-economic backgrounds. Even a teacher (T5) who first claimed that she did not quite understand what multilingualism means, continued by stating that "today you cannot manage with only one type of language", referring to academic and everyday language. Different text modalities were also recognised as an aspect of multilingualism. For example, both history teachers (T1, T6) linked multilingualism to foreign language originated loan words and terms, typical for their subject, such as *industrialismi* 'industrialism'.

All teachers were unified in acknowledging their own multilingualism and some of them reflected on it against their own language background and relation to foreign languages. Being a multilingual did not only mean using different

languages. The local L1 variants were brought up as an example of multilingualism by two of the teachers. One of them expressed pride over her dialect as a part of building and sharing a community identity. Another one was slightly hesitant about whether it is pedagogically appropriate to use a variant and expressed a concern for being a bad language model because of it.

Quite expectedly, the CLIL teachers more readily viewed multilingualism from the point of view of multiple languages, but often this was restricted to the two languages used in the bilingual program. For the CLIL teachers, the coexistence of L1 and L2 during lessons seemed quite functional and unproblematic, although the students sometimes had to be reminded to use more English. One of the non-CLIL teachers had herself studied in a FL immersion school. Although not currently working in a CLIL school, she brought up the idea of teaching her subjects partly in some of the foreign languages taught at school.

Unless prompted to do so, multilingualism was rarely discussed by the teachers from the viewpoint of experiences and expected challenges with increasing immigrant student population. Managing the multilingualism of student populations thus seemed to be a matter of the future. The new curriculum declares that “[p]lurilingual pupils are encouraged to use languages they know in a versatile manner in the lessons of various subjects and other school activities” (FNBE 2014/2016: 91), but according to many teachers the languages or language backgrounds of the learners were seldom visible or audible in the classrooms. This is not surprising given that the participants worked in small or medium size towns in Finland, not yet affected by large-scale immigration to the same extent as schools in bigger cities (e.g. Latomaa 2012: 526). Furthermore, in comparison to elementary school teachers, the secondary school subject teachers often do not have similar knowledge of their students’ language background or specific language support needs, due to larger numbers of students and varying group constellations. The language-related work with migrants by special education experts and Finnish as L2 teachers was mentioned, showing that multilingualism was seen as a concern for special educational contexts, not yet integrated in the mainstream education and not yet playing a major role in the teachers’ daily practice. An exception was a mention of students’ natural interaction in their shared L1 in an orienteering group work situation, reported by a physical education teacher.

Multilingualism also raises policy questions concerning participation, equality and language choice. In many English-medium CLIL schools in Finland, both English and Finnish skills of the students are tested for access to the program, which may hinder the participation of students with immigrant backgrounds. Such strict bilingualism policy seems to act against the idea of multilingualism. According to a CLIL teacher, the low number of immigrant students in her school was due to student streaming by local school policy. She also maintained that

alongside students' home languages also other languages learned at school, such as Swedish, were equally invisible in the bilingual lessons. A contrary example was brought up by a CLIL teacher from another school who reported that she tried to promote her students' multilingualism by allowing the use of different languages in her lessons and by encouraging the students to study foreign languages, not only English. Moreover, the socio-economic background of the students was considered a multilingualism issue by this teacher, who brought up the importance of clear teacher talk to ensure that students from diverse family backgrounds could understand the instructions.

## 5.2 Multiliteracy

As pointed out above, the new core curriculum highlights the importance of multiliteracy, defined as “the competence to interpret, produce and make a value judgement across a variety of different texts, which will help the pupils to understand diverse modes of cultural communication and to build up their personal identity” (FNBE 2014/2016: 23). Although not extensively discussed, multiliteracy was connected by the teachers to the use of visual materials, numeric systems and experimental work, deployed in addition to traditional texts (see Mustaparta et al. 2015: 19) for both supporting learners' understanding and for teaching how to interpret multimodal information. An example of employing new technology was given by a history and social studies teacher (T6) according to whom a mobile gaming application had helped students to tackle the difficulty of learning economical terms in social sciences. Otherwise, ITC was only discussed when a teacher was critical about the resources for digitalisation.

As discussed earlier, a biology and geography teacher (T3) considered multiliteracy an example of multilingualism. Furthermore, the same teacher's interpretation of texts, specifically in geography, included “reading” maps, graphs and the environment. This extends the view of language to more than a system of spoken or written linguistic items, which is well in line with current literacy research (see e.g. Lankshear and Knobel 2011; Pitkänen-Huhta and Holm 2012). The teacher also mentioned that in her subjects, some tasks, such as drawing climate charts, or conducting laboratory and fieldwork, could be completed without using spoken or written language at all. Similarly, non-verbal physical activities, often crossing subject boundaries, were mentioned by the teacher of physical education.

Multiliteracy perspective is relevant for all subjects. Inherently it belongs to mathematics, as pointed out by mathematics teachers in this study who paralleled mathematical symbol systems with language. Combining the two modes may support but also challenge the students, as expressed by a teacher:

*Sometimes you wonder whether it's a question of having problems with reading comprehension or the mathematics side, calculating, Working with percentages is definitely a reading comprehension issue, the calculating only involves multiplying and dividing and they can use calculators. The problem is how to make a mathematical formula out of the text. (T2)*

Another teacher (T7) argued that numbers as universals are easier for some students to operate with, especially immigrant students, whose insufficient Finnish skills may occasionally hamper understanding written or spoken instructions. She had also noticed secondary school students often encountering difficulties in moving from one mode of presentation to another. This happened for example in physics lessons, when the students could not link the observations made during the experiments to the facts that had been taught or read in the textbook.

Considering different texts, multiliteracy can be seen to refer to subject-specific languages, discussed in more detail below. Cross-references to other subjects were made by both history teachers who mentioned that historical texts and their interpretations change in time, which is typical for their subject, but the same development can also be seen in the historical evolution of other fields and school subjects. As regards multiliteracy in history, visual documents and historical texts also need specific interpretative skills that rely on the general knowledge of the context. According to a history teacher (T6), students could practise these contextual interpretative skills by, for example, reading newspaper articles, propaganda texts and posters, where visual literacy and historical understanding were needed and developed. As examples she mentioned the meanings of the word *crash* and the phrase *From Boom to Gloom* in the context of economics and history of economics. Furthermore, she reported that understanding cause and consequence, typically related to history, is demanding especially since causality is rarely exposed in the textbooks in a straightforward manner. More general study skills, common to different subjects, such as critical thinking, academic writing, reading skills, media literacy, and research skills were also mentioned.

A rich and multimodal perspective to multiliteracy, well in line with the new curriculum, was offered by a physical education teacher (T4) who elaborated on the relationship of embodied, visual and spoken interaction in her lessons. Her educational context was further complicated by the use of a foreign language, as she worked in a CLIL school. Even though physical movement was the main goal of the lessons, spoken or written language was needed for instructions, explanations and definitions. For many students, it was most natural to learn in action by imitating movement. Others needed scaffolding by verbal instructions, by the reflection of own body in the mirror, or by the teacher correcting movement. Especially in orienteering, the skill of interpreting maps, environment and some-

times written instructions were needed. This illustrates that complex and multi-modal literacy skills are also needed in non-academic subjects.

### 5.3 Subject-specific language

Secondary school teachers in Finland major in their subject field. From this perspective, it is not surprising that the teachers readily brought up subject-specific language as an important matter, conceptualised especially as terms, concepts and words. There was particular emphasis across the discussions on the role of terms and concepts as the building blocks of the school subject and the field of science in question. As the biology and geography teacher (T3) maintained, “you have to know the central concepts or basic vocabulary of biology first to be able to speak about biology”. In a similar vein, a mathematics, physics and chemistry teacher (T7) described as traditional to approach the content in her subjects by accumulating it from the small building-blocks, the concepts. She, however, also pondered whether it would help understanding to start from the phenomenon as a whole, and eventually break it down into smaller units; this would differ radically from the traditional ways of constructing knowledge in mathematics classrooms (see below for a more detailed discussion of teachers’ views on subject-specific knowledge construction).

As regards history, although one history teacher (T1) did not consider textual practices in her subject different from those in other subjects, for another teacher (T6) it was clear that history has its own words and ways to write and read historical sources. In spite of their varying levels of awareness in relation to subject-specific language, the teachers agreed in deeming abstract academic and field-specific concepts difficult for students because they are simultaneously very concise and carry broad meanings, context-dependent and constructed throughout the historical development of the field. This idea was shared by teachers of different subjects. A physics teacher (T5) mentioned that “the text might be short, but every sentence is very meaningful”. The difficulty was also linked to the linguistically foreign forms and origins of terms, brought up by the history teachers, or to the scientific meaning deviating from the everyday use of the same word, especially in physics.

There was less talk on subject-specificity as a worldview of the subject or scientific field. Moreover, research skills and scientific orientation were practiced in an age-specific way, illustrated by a mathematics and physics teacher (T2) by saying “we try to wonder a little bit”, even though maintaining that scholarly argumentation is still too demanding for students in the comprehensive school. Interestingly, another mathematics teacher (T7) considered being mathematically

oriented rare in general and unlikely that the students would start solving their everyday problems with mathematical solutions and ways of thinking offered by the subject. She also expressed her disappointment in the curriculum work concerning mathematics, where “nothing had changed since the time of Socrates” and seemed not to have changed again, in spite of the new understandings of learning.

Contrary to the idea of everyday language being avoided in teaching mathematics (e.g. Martinello 2009, in Aalto and Tarnanen 2015), the interviewed mathematics teachers highlighted the importance of explaining and opening up difficult language of their subject in everyday language or in “the language of the young people” (T5). They justified this by the age and cognitive level of the students in comprehensive school where the differences between learners may be considerable. One of the teachers (T2) expressed this as follows:

*The language of mathematics is really dense, you don't want to say anything more than you really have to, definitions are very exact, formulations often really strict when you go to a higher level...very much in the comprehensive school maths I try to open them up, as much as possible, in general everyday language, I don't use the higher order definition that much. (T2)*

Another mathematics teacher (T7) talked about difficulties in building understandable and meaningful bridges to the students' everyday reality with everyday language. On the other hand, using mathematical symbol systems suited some students, as was mentioned by the same teacher.

## 5.4 The role of language in knowledge construction

The role of language in knowledge construction is explicitly articulated in the new core curriculum. Mustaparta (2015: 4) reflects the centrality of language in describing language as the most important tool for thinking in all school subjects. This is interestingly echoed in the words of a mathematics teacher (T2): “For me, at any level, mathematics is basically about reading comprehension and then rationalising it in the context”. He did not clarify whether the target text in *reading comprehension* included mathematical symbols, verbal problems or both. His statement, nevertheless, is in line with the idea of multiliteracy in the new curriculum where “text refers to knowledge presented by systems of verbal, visual, auditive, numeric and kinaesthetic symbols and their combinations” (FNBE 2014/2016: 23).

The role of language in teaching and learning seems to become apparent for the teachers especially in comprehension problems that require explaining or negotiation. A mathematics teacher expressed her concern about the fixed nature of subject-specific teacher talk: “We think and speak exactly the

same way. What if the student does not understand and this is the only sentence used?” (T7) The problem with understanding is thus situated in language through which a phenomenon is explained. This is also reflected in the teacher’s description of physics and chemistry as subjects with “a strong language dimension... which might explain why they are difficult for some learners”. In another occasion, she contrasts the concrete everyday language skills with abstract mathematical thinking that is often with no clear connection to practical life. For teachers of physics, mathematics and chemistry, on the other hand, the connection between language and knowledge seemed different: they regarded knowledge primarily as non-linguistic observable phenomena and processes that then need to be explained by language (T5).

In comparison to other teachers, the CLIL teachers seemed more aware of the role of language in knowledge construction and understanding and as something that had to be scaffolded constantly. For this both L1 and L2, occasionally even students’ other languages were used in classrooms. According to a CLIL physics teacher (T5), using foreign language makes learning much more challenging for some pupils. Therefore, if the students do not understand, she explains things in a simpler way, paraphrases, uses metaphors or analogies and visual aids, sometimes L1. The idea of using various languages was not fully confined to CLIL contexts, however, as a non-CLIL mathematics teacher (T7) entertained the idea of partly teaching in another language to motivate the students, to add an international dimension to the classes, to enhance cognition, and to motivate both studying mathematical subjects and foreign languages. She thought that this would not, however, suit all learners.

To an extent, the interviewed teachers did also problematise the relationship between knowledge and language and the degree to which understanding resides in language. Many teachers reported about students’ problems of understanding the content of learning, tying this partly to the old curriculum being too crammed full of content so that the teachers and learners had no time to properly construct understanding. Instead, the content was read out of the books and memorised word-for-word. This did not seem to represent understanding for teachers who considered it a sign of deeper understanding when students can explain the phenomenon with their own words, not copying the words of the teacher or the textbook. As mentioned above, a mathematics teacher (T7), for example, expressed concern for her use of fixed forms of expression – even shared by colleagues – which might prevent learners from seeing that “the idea is not in the sentence itself”. Similarly, a CLIL teacher (T3), tried to find the underlying meaning and ignore linguistic mistakes when assessing pupils’ writings, although she admitted that pupils benefit from good language skills. These examples highlight that while teachers recognise the role of field-specific language in knowledge

construction in the classroom, learners' own words are valued as signs of their level of understanding.

The teachers reported scaffolding learning by explaining abstract things in everyday language, giving examples or paraphrasing sentences and utterances. In some cases, the teachers had used different languages to help a student who had problems in understanding the language of instruction. A mathematics teacher (T7) had noticed that teacher explanations could make the content more accessible but sometimes also confuse the students, who thought that the teacher was talking about different things or parallel realities rather than explaining a phenomenon. A physical education teacher allowed her students to use their own mother tongue with other students sharing the same language to ensure understanding of the written instructions in orienteering.

Overall, the teacher interviews included descriptions of processes of teaching and learning which displayed sometimes opposite views to the relationship between phenomena studied and language in knowledge construction:

*In physics, there is first reading of the textbook or wondering about the phenomena by making experiments, which is followed by explanation. On the contrary, mathematics starts head on from the definition and practicing follows. (T2)*

Similarly, another physics teacher explained that natural science represents a phenomenon-based, empirical way of approaching things where language supports experimental work by providing explanations. She, furthermore, verbalised the practices in her subject in a slightly different manner: "Physics is much about learning concepts and models and then knowing how to calculate". (T5) Also the ways approaching texts varied. A history teacher (T1) maintained that the only way to handle some difficult but useful concepts in the field of economics, such as *arvonlisävero* 'value added tax', was to learn them by heart. In her lessons the textbook texts were read aloud to support the weaker learners, whereas another history teacher (T6) from a CLIL school wanted to challenge the students academically by not explaining all the texts thoroughly during the lessons.

Conducting experiments in physics and chemistry should facilitate students' learning and understanding because it is concrete and phenomenon-based. However, a science teacher (T7) pointed out that it is often very difficult for the students to make observations and to relate this to the level of language of the subject. Instead of focusing on the phenomenon itself and learning together, they tend to make shortcuts and jump straight into explanations, remaining unable to link the experiments to the issues being studied. As a result, the facts were afterwards read and memorised from the book for learning. This shows that the relationship between language, action and knowledge construction is complex and easily remains hidden from the learners.

## 6 Conclusion

As the observations above show, the explicitly articulated new language focus in the Finnish core curriculum with the interconnected concepts of multilingualism, multiliteracy and subject-specific languages was still conceptually and ideologically rather new to the teachers at the time of the interviews. In spite of this, they often found concrete connection points between the language statements of the new curriculum and their teaching experiences, especially when describing their subject fields. The teachers elaborated on language issues in education from many perspectives, most often with a practical point of view. This shows that the processing of the new curriculum had begun, although manifested in multiple ways ranging from initial confusion and criticism to the perception of old ideas being expressed in new words.

The teachers' language awareness varied, which is visible for example in their perceptions on multilingualism. While some approached it from the viewpoint of skills in different languages at rather general level rather than reflecting this in relation to increasingly multilingual school realities, others acknowledged these issues and also considered multilingualism from the viewpoint of different disciplinary languages. Although the teachers acknowledge the role of language in own subject area and learning, the meta-level of explicitly noticing and talking about different languages in the community seems to be less apparent. Language is thus seen to serve the purposes of learning and understanding subject content, not so much identity and community building. The interviews revealed no evident and acute conflicts concerning multilingualism and multiculturalism in the mainstream educational contexts at the time of the interviews. However, many teachers expected these issues to become more salient in the future. As Aalto and Tarnanen (2015) point out, becoming aware of multiculturalism and multilingualism at schools is one of the key developmental issues in education that benefits all members of the educational community. With growing multilingualism in society, this is also an acute and important topic for further research, both from perception and practice point of view.

Especially the CLIL teachers described talking about language as a necessity in their communities. However, strategic bilingualism of some CLIL programs seemed to lead to ignoring the growing multilingualism in society. The invisibility of migrant students in the teachers' accounts also suggests a tendency towards monolingual ideologies. Immigrant students' access to bilingual programs and the recognition of their languages form a question of equity that needs to be answered in Finnish education. Awareness of language in its societal perspective is essential for all teachers, which sets a task for teacher education and in-service

training. Furthermore, secondary school subject teachers need practical knowledge about how to support multilingual students.

As regards multiliteracy and subject-specific language, teachers indicated some familiarity with these concepts and their interconnections as the multimodality of texts and textual practices in their subjects were brought up as subject-specific issues. However, multiliteracy did not receive in-depth treatment and subject-specific language was most often conceptualised in terms of central terms and concepts rather than textual practices or worldview typical of the subject. This shows that there is room for developing subject teachers' language awareness towards a wider understanding of subject-specific languages (Gleeson 2012) and literacies (Moje 2008). Adding language-related statements in the curriculum may be a beginning for enhanced language awareness in education but the new ideas have to be further elaborated and interpreted in teaching communities to affect the practices in the classrooms.

All of the interviewed teachers accepted the idea presented in the new curriculum of every teacher being a language teacher. However, the meaning of this was not further problematised, unlike in the interviews conducted with European CLIL teachers in an earlier study (Skinnari and Bovellan 2016), where teaching a foreign language was only partly seen as the responsibility of a subject teacher. Most often, the teachers in this study understood language as the specific language of their subject, which they took full responsibility of. It was more seldom the case that teachers referred to specific language issues such as correctness, which they often connected with meaning and understanding. Language was seen as a tool for knowledge construction and it was used in a flexible manner to serve this aim.

Although the role of language was understood in knowledge construction (cf. Gleeson 2012: 112), the essential position of language as a “cognitive tool through which all learning takes place” (Breidbach et al. 2011: 11) was also challenged by the teachers' idea of knowledge and understanding as situated in phenomena “behind the words”. Language and content knowledge were also perceived as separate when some teachers maintained that in their assessment practices students' imperfect language did not affect their evaluation. On the contrary, for many teachers copying the exact words of teachers of textbooks was a sign of superficial learning. This also has implications for assessment which, overall, seemed to be a problematic language-related issue for the teachers and clearly an area deserving more research attention in the future

This study captures subject teachers' views of the language-related aspects of the new curriculum in the preparation stage for its implementation where they do not yet have experiences of applying the new ideas into everyday teaching practice. The results illuminate the multidimensionality and less transparent

features of language awareness. They also indicate how the role of language in the curriculum is not immediately apprehended at the outset but needs further elaboration. Interviewing the same teachers again after they have gained experiences of implementation of the new curriculum could offer a fruitful perspective to the curriculum work and the role of language therein. As the teachers' language awareness varied, it would be an important topic for further research to find out how this is reflected in the educational practice. Moreover, the focus in this study has been on individual teachers and their perceptions as revealed by interview data. As rooting the ideas of curriculum renewal is very much a community effort, it would also be worthwhile to widen the perspective by following how beliefs are socially constructed, negotiated and contested in the everyday practices of school communities.

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