Learning to express time and cause:
A Systemic Functional Linguistic Perspective

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Tiivistelmä – Abstract

Tämä tutkimus käsittelee yläkoululaisten oppijakielen piirteitä ns. CLIL-opetuksen kontekstissa (*content and language integrated learning*). Tutkimuksessa tarkastellaan suomenkielisen yläkoulun oppijoiden kielenkäyttöä historian oppiaineen englanninkielisissä kirjoitelmissa. Oppiaineen sisällön ja kielen oppimista tarkastellaan historian oppiaineen kielenkäytön tapoihin sosiaalistumisen näkökulmasta. Tutkimuksen tavoitteena on selvittää, 1) millaisia kielellisiä valintoja oppilaat tekevät ilmaistessaan historian oppiaineen keskeisiä merkityssisältöjä aikaa ja kausaalisia syy-seuraus -suhteita, 2) miten historian kirjoitelmat rakentuvat ja 3) miten oppilaiden käyttämät ajan ja kausaliteetin ilmaukset vastaavat edellytetyn historian tekstilajin (genren) käytänteitä. Tutkimuksen aineistona on kuusi yläkoulun 7. luokan oppilaan kirjoitelmaa englanninkieliseltä historian kurssilta. Systeemis-funktionaaliseen kieliteoriaan perustuvan tutkimuksen analyysimenetelmänä sovelletaan genreanalyysia, erityisesti Caroline Coffinin (2006) esittelemän historian diskurssin tekstilajikuvauksen mukaan. Tutkimusanalyysi osoittaa, että historian tekstilajit sekoittuvat oppilaiden kirjoitelmissa. Kirjoitelmien rakenne noudattaa selittävän tekstilajin (*explaining genre*) jaksoja, mutta jaksojen sisällä kirjoittajat käyttävät puhekielen omaisia, narratiivisen tekstilajin (*recording* genre) mukaisia ilmauksia ja kielellisiä rakenteita.

Asiasanat – Keywords CLIL, historical discourse, genre, generic stage, temporal meaning, causal meaning

Säilytyspaikka – Depository

Muita tietoja – Additional information

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Abbreviations

CLIL	Content and language integrated learning

1 INTRODUCTION

CLIL, or *content and language integrated learning*, aims at integrating the learning of content of school subjects with the learning of a non-native language (Bentley 2010:5). Thus, in their studies CLIL students face the challenge of writing school-based texts in a foreign language. A widely known feature of learner writing is the tendency of the students to write as they talk, that is, to rely on the grammar of informal interaction while writing academic texts (e.g., Martin, 1993; Schleppegrell, 2004; Wells, 1994). According to Schleppegrell (2004:111), "a major challenge that faces students as they learn to write is moving from the linguistic choices that are typical of informal interaction to draw on linguistic elements that are effective in school-based writing". As pointed out by Schleppegrell (2004), in order to succeed the learners are expected to develop their writing towards a more formal style of school-based registers and genres.

The aim of this study is to analyse how CLIL students use language to construct content by analysing the linguistic features of student writing. In particular, the study aims at examining features of student writing in a CLIL context in which history is learned through a foreign language. History is a school subject with its own subject specific language. Husbands (1996:30-43) discusses the role of language in learning about the past at two different levels, namely at the level of 1) concepts, and 2) organising principles. Firstly, historical language or historical discourse is characterised by the language of the past (e.g., names of items no longer in use), the language of historical time (*era, century, medieval*), historical processes (*chronology, cause*) and historical description and analysis (*revolution, monarchy*). Secondly, the language of the organising principles of history involves the ideas of chronology, sequencing, historical change, historical causation and consequence. Furthermore, he discusses language as a labelling vs. interpretive system in history teaching.

From the linguistic point of view, historical processes of chronology and cause pose a challenge to learners of history, not least when history subject is learned through a foreign language which is the case of CLIL learners. As pointed out by Schleppegrell (2004:131), temporality and causality as core logical relationships of history texts can be expressed in different ways depending on the degree of formality of the text. Furthermore, the expectations on how a history text is organised depend on the purpose of the text; whether

the aim of the text is to record historical events, to explain them, or to argue about different interpretations of the event.

In my study, I focus on two key areas of historical meaning, namely *temporal and causal meaning*, both at concept level (how CLIL history students express temporal and causal meaning), and at the level of essay organisation. To sum up, the study aims at analysing 1) how temporal and causal meaning is expressed in the CLIL students' history essays, 2) how the overall structure (genre and generic stages) of the history essays is organised, and 3) whether the linguistic resources applied to express temporal and causal meaning are compatible with the genre expectations.

The study is limited to history learning in lower secondary schools within the broader area of content and language integrated learning. The source of the data is history essays written by grade seven pupils in a Finnish comprehensive school.

The teachers of content subjects, specifically history teachers, applying the CLIL method might have a general idea and understanding of the role of language in the learning process but they might lack the linguistic know-how and thus fail to guide their students in effective essay writing. Morton (2010:89) points this out connected to the Spanish context of CLIL history learning. Despite the focus on causes and effects of historical events in history classrooms students are not guided in how write factorial and consequential history essays. This study might be able to give history teachers ideas on how to support their students in essay writing.

This study is organised in five chapters. The first chapter introduces the research problem, the aim of the study, the research questions, the scope and significance of the study. In the second chapter I discuss the theoretical framework, key concepts and previous studies related to the topic of this study. In the third chapter, the data of the study and the methods used to analyse the data are presented. In the fourth chapter the findings of the study are presented. Chapter five provides discussion and conclusions on what was found in the study.

2 SYSTEMIC FUNCTIONAL LINGUISTICS (SFL) APPROACH

The theoretical framework of this study relies on the paradigm of *systemic functional linguistics (SFL)*, originally formulated by Halliday (1985a/1994), and elaborated by Halliday and Matthiessen (2004). Instead of prioritising the structure of language, which has been the concern of the formal tradition of linguistics, functional linguistics relates language to its context of use. According to Halliday and Matthiessen (2004:24),

> we use language to make sense of our experience, and to carry out interactions with other people. This means that the grammar has to interface with what goes on outside language: with the happenings and conditions of the world, and with the social processes we engage in.

Among the key concepts, *context of situation* and *context of culture,* originally introduced by Malinowski (1923, reviewed in Martin 2010), refer to language use in a certain situational and cultural context. As regards the first dimension of context of situation, SFL theory suggests three linguistically relevant aspects of a situation, the so-called *contextual* or *register variables* of *field, tenor* and *mode* which systematise the relation between language and context of situation. *Field* refers to the social activity, the topic being discussed; *tenor* refers to the social roles and relationships between the addresser and addressee of a text, as indicated by the text; and *mode* refers to the channel of communication and, consequently, to the degree of interactivity, spontaneity and communicative distance of the text (Coffin, Donohue and North 2009:213-215; Martin 2010:16, 20-25; Schleppegrell 2004:46).

Furthermore, the SFL model suggest a correlation between the three aspects of social context and three areas of meaning, the so-called *metafunctions* of language: *ideational, interpersonal* and *textual meaning.* These in turn are realized by lexicogrammatical resources provided by language (Halliday and Matthiessen 2004:29-31; Martin 2010:17-25; Coffin et al., 2009:226; Schleppegrell 2004:47). The ideational meaning is further divided into *experiential meaning* and *logical meaning.* The lexicogrammatical system realizing experiential meaning is that of *transitivity*. As indicated by Halliday and Matthiessen (2004:168-178), the primary elements in the experiential structure of the clause are *processes* (doing, sensing, being) unfolding through time, *participants* involved in the process, and *circumstances*, such as time and cause, associated with the process. The second type of ideational meaning, logical meaning, is realized through *logicosemantic relations between clauses*, involving temporal and causal relations. A more comprehensive account of ideational metafunction is provided for example by Halliday and Matthiessen (2004:168-301), Downing and Locke (2006:120-166) and by Coffin et al. (2009:282-332). Moreover, the lexicogrammatical resources realising interpersonal meaning

are, among other things, *mood, modality, appraisal, stance* (Halliday and Matthiessen 2004:106-167; Downing and Locke 2006:174-212; Coffin et al. 2009:347-387). Lastly, the lexicogrammatical resources realizing textual meaning are, for instance, *nominalisation,* the *theme-rheme structure* of the clause, and beyond the clause, *cohesion* (Halliday and Matthiessen 2004:64-105 and 524-585; Downing and Locke 2006:220-308; Coffin et al. 2009:396-433).

The second dimension of Malinowski's (1923) original theory of the relationship between language and its context of use, namely context of culture, resembles the concept of *genre*, as suggested by Martin (2010). According to Martin (2010:19), genre is "a staged, goal-oriented, purposeful activity in which speakers engage as members of (…) culture". Thus, the social purpose of a text (for instance explaining or arguing) affects its structure and lexicogrammatical patterns. The concept *generic stage* is used to refer to the distinctive sections of a text (Coffin et al. 2009:252). So, instead of describing the structure of an essay with the general labels of *introduction, body* and *conclusion,* more specific and functional descriptions are used. The generic stages of, for instance, a historical recount are *background, account of events and deduction* (Coffin 2006:64). For this study, Coffin's (2000, 2006) investigation of the genres of school history offer useful concepts, such as *recording, explaining* and *arguing genres* of history.

The purpose of the sections 2.1, 2.2 and 2.3 is to introduce SFL-based research carried out in the field of educational linguistics, and in particular, research on secondary school literacy. In section 2.1, in order to illustrate the challenge of academic language encountered by secondary school students, the register differences between *informal interactional texts* and *school-based texts* are discussed, as investigated by the North American researcher Schleppegrell (2004). Section 2.2 discusses general register features of history discourse, while section 2.3 presents the genre-based approach to the study of historical discourse, as investigated by Coffin (2000, 2006). Finally, student writing specifically in the context of CLIL history learning is connected to the genre-based approach.

2.1 SFL applied: informal interactional texts vs. school-based texts

Within SFL, the fundamental differences between informal and more formal uses of language were originally discussed by Halliday (1985b/1989), who analysed the basic differences between spoken and written language. Halliday (1989:63), instead of regarding speech and

writing as simple vs. complex forms of language, argued that speech and writing should be regarded as *different kinds of complexities*. The complexity of written language, especially when applied to academic registers, is created by *high lexical density*, that is, academic texts have a high quantity of lexical words compared to grammatical ones. Spoken language, on the other hand, tends to have lower lexical density, the structure of a single clause being simple. This, however, does not reduce the complexity of speech. Spoken language is characterised by *grammatical intricacy*, in other words, by a complex clausal organization. Typically, elaborate clause complexes are structured by the use of parataxis and hypotaxis.

Basing on the framework of SFL, Schleppegrell (2004) presents a description of the linguistic features of the language of *school-based texts*, which she contrasts with the language of *informal interaction*. She identifies patterns of lexical features and grammatical structures characteristic of linguistic registers used in the social contexts of informal interaction, both spoken and written, and school-based tasks. Schleppegrell (2004:45-46) defines *register* as a "configuration of lexical and grammatical resources which realizes a particular set of meanings". Briefly, her study shows how the differing social contexts of informal interaction and school-based learning are realized in different choices in the lexicogrammar.

Schleppegrell (2004:63-65) shows how lexicogrammatical choices are dependent on the context of language use. While language of interaction, whether it is spoken or written, realizes contexts which are characterised by informality and negotiation, the language of schooling, most often in its written form, realizes contexts where more formal language use is expected. Interactional texts reflect a context which allows co-construction of meaning in real-time, while school-based texts are typically created by a single writer who has time for planning and revision. Furthermore, the aim of most school-based text is to present ideas to be analysed and interpreted. The different lexical and grammatical choices made are functional for creating different types of texts which in turn realize different types of contexts.

The major linguistic differences between interactional texts and school-based texts, as presented by Schleppegrell (2004:49-76), are summarised in the following sections. In brief, the linguistic features characterising academic language are expected to realize "information display, authoritativeness, and high degrees of structure" (Schleppegrell 2004:74). Thus, the ideational component of the grammar provides resources for *displaying knowledge*, the interpersonal component of the grammar contains resources which allow the learner to

demonstrate his/her role as an *expert of the subject area*, and the textual component of the grammar includes resources for *structuring texts*.

2.1.1 Ideational metafunction

Ideational metafunction, that is, *experiential and logical meaning*, is realized through transitivity and logico-semantic relations. Schleppegrell (2004:50-58) shows how the expectations for linguistic choices for ideational meaning are different in interactional and schooling contexts. Table 1 gives a summary of her ideas.

Table 1. Linguistic features of interactional and academic registers. Ideational meaning / Field. Adapted from Schleppegrell (2004:50-58, 74).

FIELD: Presenting ideas	**Interactional registers**	**Academic registers**
Situational expectation	*"Don't talk like a book"*	*"Display knowledge"*
Lexical choices	lexis tends to be ordinary and generic; non-technical and concrete	- complex nominal syntax; lexis is often technical and abstract; subject-specific terms and expressions common - material and relational processes more frequently used
Logical relationships (e.g., temporal and causal meaning)	- frequent use of conjunctions - few common conjunctions used to realize a variety of logical relationships - external conjunction common (conjunctions linked to the interactional context)	- nouns and verbs used more frequently to signal logical relationships (e.g. clause-internal reasoning) - a more varied set of conjunctions used in more restricted ways - internal conjunction common (reflects the rhetorical organisation of the text)

While interactional texts are characterised by ordinary, generic, non-technical and concrete vocabulary, school-based texts typically make use of specialized, technical and abstract lexis (Schleppegrell 2004:52-54). Furthermore, according to Schleppegrell (2004:54-58), logical relationships within texts, that is, relationships of *time, consequence, comparison and addition* are expressed differently in interactional and academic texts. Characteristically, in informal interaction, conjunctions are used to express logical relationships, while in academic texts nouns and verbs are more often used to express logical connections. However, conjunctions are still used in academic registers, but there is a difference in use, as highlighted by Schleppegrell (2004:56-57). In informal interaction, intonation and the context of the situation contribute to the meanings. As a result, fewer conjunctions are used, and their meaning can be more general and vague. In contrast, in academic registers, a more varied set of conjunctions, with more specific meaning, is used.

2.1.2 Interpersonal metafunction

The interpersonal component of the grammar contains resources which allow the learner to embody the role relationships of the context and show his/her position on the topic. Schleppegrell (2004:58-63) shows how the expectations for linguistic choices for interpersonal meaning are different in interactional and schooling contexts. Her ideas are presented in Table 2.

Table 2. Linguistic features of interactional and academic registers. Interpersonal meaning / tenor. Adapted from Schleppegrell (2004:58-63, 74).

TENOR: **Taking a stance**	**Interactional registers**	**Academic registers**
Situational expectation	*"Be open to dialogue and negotiation"* - a more immediate, spontaneous relationship	*"Be authoritative"* - a non-interacting and distanced relationship
Grammatical features	- varied mood structure (statements, questions, commands) - intonation expresses interpersonal meaning in spoken informal interaction	- declarative mood and modal verbs common - evaluation often implicit through resources of appraisal

Interactional texts are characterised by *varied mood structure* making use of the *declarative, interrogative and imperative mood*. In addition, *intonation* and *rhetorical questions* express interpersonal meaning in informal interaction. On the other hand, academic texts are marked by the *declarative mood*, creating a more distanced relationship between the speaker/writer and the listener/reader. In academic texts, attitudinal meanings are expressed more *implicitly* through for example modal verbs and adjuncts.

2.1.3 Textual metafunction

The textual component of grammar includes resources for structuring a text, such as *cohesion* and *thematic development.* Schleppegrell (2004:63-74) shows how the expectations for linguistic choices for textual meaning are different in interactional and schooling contexts. Table 3 gives a summary of her ideas.

Table 3. Linguistic features of interactional and academic registers. Textual meaning / mode. Adapted from Schleppegrell (2004:63-74).

MODE: structuring a text	**Interactional registers**	**Academic registers**
Situational expectation	*"Leave space for co-construction, give your interlocutors a chance to interfere, be connected to the immediate context"* - the interlocutors mutually co-construct meaning	*"Structure text in expected ways"* - meaning constructed as the text unfolds; no co-construction with an interlocutor
Cohesive devices	exophoric reference: pronouns and deictic expressions refer to the immediate context outside the text	endophoric reference: pronouns, etc. refer to elements in the text itself
Conjunction	explicit conjunctions linking finite clauses; parataxis, hypotaxis	clause-combining strategies of condensation (nominal and verbal elements) and embedding
Theme and information structuring	pronominal subjects often in Theme position; new information is built up in the clause Rhemes	- lexical subjects - Theme position exploited to mark organizational structure; information from the Rheme of one clause is summarised as a noun phrase, which is used as a Theme in the following sentence
Nominalisation and grammatical metaphor	- congruent expressions ("things" realised as nouns, processes as verbs, circumstances as adverbs and prepositional phrases; logical relationships as conjunctions)	- incongruent expressions - nominalisation and other forms of grammatical metaphor enable dense clauses
Lexical density	low	high

Different types of texts are organized differently due to their function. As indicated above in Table 3, in informal interaction, logical relations are typically realized between clauses. In school-based texts, however, there is a tendency to express logical relationships inside a clause. Schleppegrell (2004:63-66) discusses a typical example of logical relationship within academic writing, namely the cause-effect relationship. The function of informal interaction is to *co-construct meaning*. Reasoning between clauses, i.e. linking finite clauses with explicit paratactic and hypotactic conjunctions, enables the co-construction of meaning as ideas presented in finite clauses are chained to each other by several speakers in the course of interaction. Academic texts, in contrast, are characterised by internal reasoning, that is, a cause-effect relationship is expressed through nouns, verbs and prepositional phrases. In addition, texts are organized hierarchically, with embedded clauses and nominal structures containing a lot of information. This is due to the *expository function* of school-based language: ideas are presented in order to be analysed and interpreted. In conclusion, as pointed out by Schleppegrell (2004:66), different strategies of reasoning, realized in different ways of combining clauses, create different kinds of texts. The aim of both strategies of reasoning is the same: to monitor the flow of information.

The thematic structure of a text varies according to the social context, as a result, interactional texts and school-based texts are characterised by different thematic structures. As described by Schleppegrell (2004:67-71), in informal interaction, a message often starts with a pronoun such as *I* or *you*, and new information is expressed in the clause rheme. The aim of abstract academic texts, on the other hand, is to build an argument: an argument is presented, summarised, and again expanded. Thus, academic texts are characterised by the use of nominalisations that summarise the given information of the previous clause as a theme, which again is expanded in the clause rheme. Information of the rheme of this clause may again occur in the theme of the following clause.

Grammatical metaphor is a concept construed by Halliday (1994:342-349), by which he refers to "variation in the expression of a given meaning". In brief, any given semantic meaning, when realized in the lexicogrammar, may be expressed in more or less *congruent* words, or alternatively in words that are *incongruent*, or metaphorical. So, processes can be nominalised, and conjunctive relations can be realized as processes or circumstances (Schleppegrell 2004:71-74). This enables "the abstraction, technicality, and development of arguments that characterise advanced literacy tasks" (Schleppegrell 2004:72).

By choosing to compare the two differing social contexts of language use, namely the informal context of interactional texts and the formal context of school-based texts, Schleppegrell (2004) uncovers the linguistic challenges which learners meet when learning to read and write increasingly demanding school-based texts in different subjects.

2.2 SFL applied: register features of history discourse

In the previous section, I outlined the differences between the language of informal interaction and school-based texts at a general level. Within SFL, the uniqueness of each context of language use is recognised. Accordingly, within the language of schooling, each subject (for example science or history) is characterised by its own type of discourse, determined by the nature of the subject itself. The special focus of this section, the register features of secondary school history discourse, has been described within functional linguistics e.g., by Australian researchers Martin (1992, 1993); Eggins, Wignell and Martin (1993); Veel and Coffin (1996); Coffin (1997, 2000, 2004, 2006); and the North American researcher Schleppegrell (2004).

In Sydney school of functional linguistics, the research of Martin has had an impact on the research on language of schooling. The data for Martin's (1993) early work on the discourse of science and history originate from Australian junior-secondary school science and history textbooks. His analysis of the school-based texts shows how science and history differ in their ways of utilizing linguistic resources. Most importantly, while the discourse of science is characterized by technicality, the discourse of history is not typically a technical one. According to Martin's (1993:226) view, there are only few technical terms used by the history subject (*the Middle Ages; colonialism, imperialism; socialism, capitalism, market forces,* etc.). However, despite lacking technical terms the discourse of history still provides a challenge to students. Martin's (1993:226-228) analysis of internal reasoning and the role of nominalisation in it suggests that the difficulty of the language of history is caused by the structure of the language rather than by the terms used.[1] The central role of nominalisation and grammatical metaphor in generalizing past experience and organising text is highlighted by Martin (1993) and Eggins, Wignell and Martin (1993). The more interpretative and argumentative the tone of the historian is the more abstract the text becomes.

Eggins, Wignell and Martin (1993), studying the discourse of Australian junior high school history textbooks, described the demands of history as a content subject: instead of just narrating past events, students have to learn to arrange, interpret and generalize from events of the past (Eggins et al. 1993:75). In this process, language is the medium through which past experience is transformed into meaning: "historians must be able to take language out of its immediate context – i.e., 'abstract' or 'distance' language from the then-and-there (of the past)" (Eggins et al. 1993:96). In this process, "people are effaced, actions become things, and sequence of time is replaced by frozen setting in time" (Eggins et al. 1993:75). When discussing the "technology of history", Eggins et al. (1993:90-91) describe how the original individual participants from the past are realized as generic classes, or eliminated in historical texts. Instead, actions become nominalised, and act as participants in a clause. Activities are then related to each other through time and cause.

[1] An opposite view is presented by Bernier (1997:95-103), who reports on the situation at California State University, Los Angeles. He points out categories of terminology commonly used within the discipline of history which still cause difficulty to certain groups of tertiary level students, for instance, language minority students whose L1 is not English. Terminology which was found difficult included (1) content words (regular history terms, archaic language, non-history terms, obscure acronyms and non-English vocabulary); (2) language terms (metaphors, colloquial usages, class-based constructions, cultural idioms); (3) terms with multiple or alternative meanings; and (4) historically specific metaphors and oxymorons.

Schleppegrell (2004) summarises the register features of history discourse at a general level. Her perspective being that of SFL, the summary includes ideational, interpersonal as well as textual resources for constructing history discourse. Connecting to the register features of the language of schooling in general, she shows how, within history discourse, patterns of linguistic features can be used to display historical knowledge authoritatively, and how texts are expected to be structured within the interpretative discipline of history. The register features in history discourse, as summarised by Schleppegrell (2004:128) are presented in Table 4.

Table 4. Register features in history discourse (Schleppegrell 2004:128).

Situational Expectations (Context)	*Grammatical Features (Register)*
Display knowledge by presenting and interpreting historical events	Mainly material processes, with relational processes to construct description and background and verbal and mental processes to construct points of view A continuum from personal/individual to abstract/ institutional participants Logical relationships of temporality, causality
Be authoritative by recording, interpreting, judging	Implicit modality Appraisal through evaluative lexis
Structure text in ways that enable explanation and interpretation	Theme position exploited to mark organisational structure through grammatical metaphor, conjunctive links, and temporal/locative phrases Internal conjunctive links

Schleppegrell (2004:128-131) accounts for how the lexicogrammatical resources for constructing abstract history discourse enable the historian to create an explanation and an interpretation of the historical events. Material, relational, verbal and mental processes give expression to historical events, to description and background information, as well as to the ideas and words of historical participants. The focus is not on an individual human being in history, but on a more general level. This is achieved through abstract participants, such as nominalisations, generalized classes of participants (*the poor*), institutions, things, places and ideas. The historical actors may be effaced which adds to the abstraction of history discourse. Logical relationships of temporality and causality are central to the construction of history discourse.

As regards the interpersonal resources for constructing history discourse, Schleppegrell (2004:133-134) points out the roles of a historian as an objective recorder of events, an interpreter or a judge. Linguistically, the differing roles are construed through the interpersonal resources of implicit modality and evaluative lexis. Finally, according to Schleppegrell (2004:134-135), the textual resources of internal conjunction, grammatical metaphor and thematic organisation of discourse allow historical explanation and interpretation.

The descriptions of historical discourse provided both by Martin and his colleagues, and by Schleppegrell present the ideal towards which the students of history aim at while for instance writing their history assignments. The studies of Martin (1993) and Eggins et al. (1993) analysed the language of Australian secondary school history textbooks, i.e., the language written by experts of history whose mother tongue is English. The same applies to Schleppegrell's (2004) North American-based study. Offering a different perspective, Coffin's (1997, 2000, 2004, 2006) research data mainly consist of student writing, and her main interest is to find out and describe the developmental path from oral, narrative genres of history towards more abstract arguing genres of history. Coffin's work will be discussed in the following section.

2.3 SFL applied: genre-based approach to history discourse

In the previous section, I outlined the register features of abstract history discourse. Schleppegrell's (2004) description focuses on the lexicogrammatical resources available for professional historians whose purpose is to explain and interpret historical events. The discourse of history is, however, not a homogeneous genre. Within it there is a continuum between narrative and more abstract interpretative genres of history. Moreover, young learners of history move along a "literacy pathway" (Coffin 1997:202) as they are socialised into increasingly abstract forms of history discourse. In this section I will present the major genres of history in more detail, as described by Coffin (1997, 2000, 2006).

Based on the framework of SFL, Coffin (1997) identifies lexicogrammatical patterns and text structures in Australian secondary school history textbooks. Basically, there is a distinction between two ways of representing historical experience: *the narrative* and *the analysis*. Narratives are *temporally* organised along a timeline, in other words, the aim of written narratives in school history is to record past events "as they unfolded in real time" (Coffin 1997:200). The analysis, on the other hand, is *rhetorically* organised, that is, it aims at "advocating a particular interpretation of the past" (Coffin 1997:198). As a result, there is a distinction between *chronicling the past* and *explaining the past*. The linguistic challenge provided to a history student learning to move from chronicling to explaining is a "movement from more common-sense to more abstract modes of meaning-making and the linguistic resources that construct this movement" (Coffin 1997:202).

In her later work, Coffin (2000; 2006) aims at providing a description of school history writing, in the context of Australian secondary education, the specific focus being on student writing, with regard to its typical linguistic choices and semantic patterns (register) as well as its textual organisation (genre). The key areas of historical meaning, as proposed by Coffin, are *temporality, causality* and *evaluative meaning.* As regards to the textual structures of history writing, her aim is to create a more detailed description of the genres of history discourse along the continuum of chronicling (narrative) vs. explaining genres of history (Coffin 2000:1, 15; 2006:14, 18).

The data of Coffin's (2000, 2006) study consist of 38 texts, selected partly out of a corpus of approximately 1000 samples of junior secondary school student writing (aged 12 to 15 years), being provided by the Australian *Write it Right* literacy research project, and partly out of published national High School Certificate sample answers, representing thus senior secondary school writing (aged 16 to 18 years). As a selection criterion, she applies the quality of student writing, selecting examples of successful writing in her data. *The Write it Right* project was conducted among so-called disadvantaged schools with large numbers of students from low socio-economic backgrounds (Coffin 2000:81-87; Coffin 2006:xiii-xiv). The selected texts were analysed by using the tools of SFL, relating to genre, Time, Cause and Appraisal (Coffin 2000:88). Furthermore, applying a quantitative method, she calculates the frequency of each type of temporal, causal and appraisal resource, which according to her eases comparison between different genres (Coffin 2006:178-186).

Based on the analysis of the data of student writing, Coffin (2000, 2006) presents a classification of *recording, explaining* and *arguing genres* found in school history. These in turn are divided into more fine-tuned subclasses of genres, as shown below. Moreover, Coffin (2000:98; 2006:47) shows how Australian secondary school students are expected to progress from recording historical events to explaining, and finally arguing for or against different interpretations of them. The history writing tasks set for the students during earlier years of schooling (ages 11 to 13 years), typically require the use of recording genres, while the control of explaining genres is expected during middle and later years of schooling (ages 14 to 18 years). The students excelling in history are expected to use arguing genres by the final year of the senior secondary school, in other words, when they are 17 to 18 years old. Table 5 shows

the four subclasses of recording genres of history, namely *autobiographical recount, biographical recount, historical recount* and *historical account*, as presented by Coffin (2006).

Table 5. The recording genres (Coffin 2006:64).

Genre family	Genre	Social purpose	Stages	Key language	Features
Recording genres	**Auto-biographical recount**	to retell the events of your own life	Orientation Record of events	- specific Participants - authorial 'I'	language of time
	Biographical recount	to retell the events of a person's life	Orientation Record of events (Evaluation of person)	- specific Participants - more specialized lexis	language of time
	Historical recount	to retell events in the past	Background Record of events (Deduction)	- generic Participants - specialized lexis	language of time
	Historical account	to account for why events happened in a particular sequence	Background Account of events (Deduction)	- generic + abstract Participants - specialized lexis - nominalisation	language of time and cause-and-effect

The purpose of historical recounts is to retell events in the past in a seemingly neutral and impersonal manner. The text is organised according to historical timeline (Coffin 2006:64). The structure of a recount consists of what Coffin (2006:56) calls the stages of *background, record of events* and *deduction.* Coffin (2006:56-58) summarises the lexicogrammatical features of historical recounts: Human agency is transparent, but instead of specific human participants typical of autobiographical and biographical recounts, historical recounts increasingly prefer generic, both human and non-human participants. Historical time is often construed through circumstances rather than conjunctives. In addition, nominalisation is used to compress timelines into periods, eras and stages, which can be qualified through describing and classifying attributes. A historical recount is characterized by a high degree of temporality, as the chronological order of events is directly reflected in the structure of text. At the same time, causal relations are rarely marked.

A historical account, as analysed by Coffin (2006:58-60), resembles historical recounts in several ways: it is temporally organised, and its generic structure is similar to the structure of a recount, with an introductory *background* stage giving a summary of previous historical events, followed by *account of events,* and an optional *deduction* stage. However, historical accounts, rather than just recounting the events of the past, aim at indicating logical cause-effect relations between them. Coffin (2006:60) highlights the growing role of generalised participants and nominalisations (grammatical metaphor) in expressing causality in historical accounts. As a

result, human agency starts fading (people as agents in history are effaced), as nominalised events act as participants in a clause.

The nature of a historical account as a deterministic chain of causes and effects is pointed out by Coffin (2006:67). Little space is left for alternative interpretations of the past. As a result, although historical account extends the historical meaning when compared to historical recounts, it still simplifies causal relations. As historical causes and effects are explained along with their chronological unfolding, more complex long-term and interrelated relations might not be revealed.

In contrast to chronicling recounts and accounts, historical explanations are no longer organised along a timeline. Coffin (2006:67-76) shows how, in historical explanations, the text becomes an elaboration of historical causes and consequences. Long-term social, economic and political trends are integrated with short-term causes. Timeline is no longer the organising principle, instead, the text is organised around factors and/or consequences. The role of nominalisation and grammatical metaphor becomes prominent as a means of explaining and analysing the past, which contributes to the increasingly abstract nature of the discourse. Table 6 shows the two subclasses of explaining genres of history, namely *factorial explanation* and *consequential explanation*, as presented by Coffin (2006).

Table 6. The explaining genres (Coffin 2006:75).

Genre family	**Genre**	**Social purpose**	**Stages**	**Key language**
Explaining genres	**Factorial explanation**	to explain the reasons or factors that contribute to a particular outcome	Outcome Factors (Reinforcement of factors)	- dense nominal groups - nominalisation - lexis associated with reasons / factors / causes - specialised lexis - numeratives and connectives for ordering causes in 'text' time
	Consequential explanation	to explain the effects or consequences of a situation	Input Consequences (Reinforcement of consequences)	- dense nominal groups - nominalisation - lexis associated with consequences / outcomes - specialised lexis - numeratives and connectives for ordering consequences in 'text' time

The deterministic cause-and-effect chain typical of historical account is no longer followed in explanatory genres. Instead, more complicated causal frameworks are created. Coffin (2006:68-69) distinguishes between *factorial explanations* (using lexis such as *factor, cause*, *reason*),

and *consequential explanations* (using lexis such as *result, outcome, consequence*). Finally, Coffin (2006:90) points out the persuasive and authoritative nature of explanatory genres; the analysis of historical events and its causes and consequences is stated as a straightforward breakdown of facts in historical explanations.

Arguing genres provide an endpoint for the "literacy pathway" sought up by Coffin, along which written forms of history discourse become progressively abstract. As shown by Coffin (2006:77-90) the aim of an argument is to persuade the reader by arguing for a specific interpretation of the past *(the exposition),* discussing different interpretations before reaching a position *(the discussion)* or arguing against a specific interpretation *(the challenge)*. Lexicogrammatical resources for interpersonal meaning, such as appraisal and modality, are utilised. Table 7 shows the three subclasses of arguing genres of history, namely *exposition, discussion* and *challenge*, as presented by Coffin (2006).

Table 7. The arguing genres (Coffin 2006:92).

Genre family	**Genre**	**Social purpose**	**Stages**	**Key language**
Arguing genres	**Exposition**	to put forward a point of view or argument	(Background) Thesis Arguments (Counter-arguments) (Concession) Reinforcement of Thesis	- non-human and abstract Participants - specialised lexis - quoting and reporting - move from more to less modalized propositions
	Discussion	to argue the case of two or more points of view about an issue	(Background) Issue Arguments / Perspectives Position	- non-human and abstract Participants - specialized lexis - quoting and reporting - constant evaluation of arguments and evidence in line with the final Thesis
	Challenge	to argue against a view	(Background) Position Challenged arguments Anti-thesis	- non-human and abstract Participants - specialized lexis - quoting and reporting - constant countering and weakening of alternative position

Arguing genres are detected in Coffin's (2006) data of secondary school students' history writing. Towards the end of senior secondary school, successful history students gain more control of their writing, and become able to debate and argue for different interpretations of the past events. They apply abstract forms of causality in their writing. Nonhuman, abstract forces are favoured as historical agents, rather than concrete historical characters.

Morton (2010) discusses genre-based pedagogy and its possible contribution to CLIL classes, suggesting that aspects of genre-based pedagogy could function as a framework for a language-curriculum in CLIL. According to his observation, in the context of Spanish CLIL classes of history subject, students were expected to write texts representing various genres of history but little support was given to them to scaffold their writing as they were not explicitly taught about the characteristic features of various text types. For instance, despite the focus on causes and effects of historical events in history classrooms students were not guided in how write factorial and consequential history essays (Morton 2010:89). It seems these history teachers did not pay attention to the linguistic aspect of their students' history writing. Coffin's (2000, 2006) classification and description of history genres and students' literacy pathway into abstract forms of history discourse is based on student writing representing examples of successful writing in her data of student writing. More attention to and research on the writing of less successful students might be able to identify features of problematic stages of writing, hence provide researchers and teachers with tools of remedial support.

3 METHODOLOGY

The focus of this study is to analyse the use of temporal and causal resources in the CLIL students' history essays, as well as their overall structural organisation, in other words, genre and the generic stages. The linguistic analysis aims at identifying different levels of success in the students' attempt to express historical content.

3.1 Data of the study

The data for the study come from a Finnish comprehensive school CLIL history classroom. It forms a part of a considerably larger data bank, collected by *The English Voices in Finnish society* -research team at the University of Jyväskylä (Nikula 2000). The original data consist of audio and video recordings of a discussion taking place during a group work session of a comprehensive school grade seven history lesson, and the essays written by the students. In the recordings, three groups of two to three fourteen-year-old students are preparing a paper on the topic *Industrial Revolution.* The activity constitutes a chain in a series of pedagogical tasks of an English medium CLIL history lesson. The aim of the group task is to help the students to construct their understanding of the topic. The collaborative oral stage of the study is followed by individual essay writing on the basis of the group discussion and reference literature. Individually written essays on the topic *'What conditions were necessary for the advent of the Industrial Revolution'* are the final products of the students' work. In this study, a sample of six history essays are analysed. The essays are labelled L1, L2, L3, L4, L5 and L6, referring to the CLIL history learners who wrote the essays.

3.2 Investigating the problem: methods

The method of this study is linguistic analysis based on systemic functional linguistics (SFL) as applied by Coffin (2000, 2006) in her analysis of temporal and causal meaning in secondary school students' history writing (outlined in section 2.3). As a result of the analysis she identified several semantic categories of temporal meaning (2000:148; 2006:106) and causal meaning (2000:218; 2006:131) related to historical discourse. Furthermore, each semantic category draws on a set of lexical and grammatical resources. Table 8 shows temporal categories related to historical discourse, and their key linguistic resources, as identified by Coffin (2006).

Table 8. Temporal categories and linguistic resources (Coffin 2006:106).

Temporal category	**Key linguistic resources**
Sequencing	dependent clauses (simultaneous or successive) with temporal conjunction external conjunctive Adjunct Process Ordinative
Setting	Circumstance of time: location
Duration	Circumstance of extent: duration
Phasing	Process nominal group conjunctive Adjunct Circumstance
Segmenting	nominal group nominalisation specialised terms for characterising historically significant chunks of time
Organising	internal conjunctive Adjunct internal Ordinative

The temporal category of *sequencing time* refers to the arrangement of historical events according to their chronological order. In Coffin's (2006:103) data set temporal conjunctions initiating dependent clauses are the most frequent linguistic resource used for this purpose. In contrast to sequencing, *setting in time* locates events at a specific point in time, irrespective of the chronological order of events. *Duration in time* in turn refers to the length of an event. Both setting and duration in time draw on circumstances of time as their linguistic resource (*in 1876; for years*). *Phasing time* is a temporal category related to the beginning, continuation and end of an event. Coffin (2000:149) points out the significance of the concepts of *change* and *continuity* in the context of historical discourse, and their connection to the temporal category of phasing, for instance, *inception* (beginning) and *conclusion* (end) being linked to historical change. Processes (*to start, to cease*) are typically used as phasing resources. *Segmenting time* (Coffin 2006:103) as a temporal category involves segments or blocks of time which have lost their original nature as sequences of events. Nominal groups, nominalisations and specialised terms such as *the Industrial Revolution* are used to express segments of time. Finally, *organising through time* (Coffin 2000:174; 2006:106) as a temporal category highlights time as a rhetorical organiser. In other words, time is used as an internal organiser of the text itself (e.g., *firstly, finally*).

Coffin (2000:216, 218; 2006:122-125), basing on Martin (1992), suggests a distinction between *enabling* and *determining causation*. Briefly, enabling causation refers to *necessary* conditions for an effect to take place while determining causation refers to *sufficient* conditions for an effect to take place. The linguistic resources to express

enabling causation are conjunctions and circumstances of *manner*, answering the question 'how'. Likewise, the linguistic resources to express determining causation are conjunctions and circumstances of *consequence, purpose* and *condition*, answering the questions 'why' / 'what for' / 'under what conditions may an event happen'. Coffin (2006:124) points out that even causal processes can be classified into enabling (e.g., *to enable*) and determining (e.g., *to result in, create, lead to, cause*) causal processes.

The causal semantic category of *abstract causation* draws on causal nouns (e.g., *reason, consequence*) as its linguistic resource (Coffin 2006:125-127). Nouns of this type are detached from the more 'real-time'/congruent chaining of causes and effects for which purpose for instance conjunctions are applied. Abstract causal nouns are more frequently applied in explaining and arguing genres than in recording genres. Table 9 shows causal categories related to historical discourse, and their key linguistic resources, as identified by Coffin (2006).

Table 9. Causal categories and key linguistic resources (Coffin 2006:131).

Causal category	**Key linguistic resources**
Enabling and determining causation	causal conjunction + dependent clause *(…. because…)* Circumstance of cause *(… because of ….)* external conjunctive Adjunct *(…, therefore …)* external causal Process *(…x resulted in y)*
Abstract causation	nominalisation *(…for the three primary **reasons;** …)*

For the purpose of this study, the distinction between enabling and determining causation might be too finetuned. Instead, a more basic distinction between congruent and incongruent realisations of causal meaning might serve this study better, namely to determine to which extent the CLIL students apply resources of spoken / written discourse in their history essays. So, instances of conjunction, circumstances (manner / means, consequence, purpose, condition) and external conjunctive adjuncts will be classified as congruent causal resources. Causal processes and nominalisations will be classified as incongruent causal resources. This distinction is shown in Table 10.

Table 10. Causal realisations and key linguistic resources (applied from Coffin 2000:203 and Coffin 2006:131).

Causal Realisation	**Key linguistic resources**
Congruent	Conjunction Circumstance of cause External conjunctive adjunct *(…, therefore …)*
Incongruent	Causal Process *(…x resulted in y)* Nominalisation *(…for the three primary **reasons;** …)*

Thus the stages of the linguistic analysis of the sample texts were the following:

1. Analyse the key temporal linguistic resources applied in the sample texts
2. Analyse the key causal linguistic resources applied in the sample texts
3. Identify the genre and generic stages of the sample texts.
4. Determine if the linguistic resources applied to express temporal and causal meaning are compatible with the genre expectations as described by Schleppegrell (2004) and Coffin (2006).

4 RESULTS

The findings of this study, described under the research questions, are presented in this chapter. The study aimed at analysing 1) how temporal and causal meaning is expressed in the CLIL students' history essays, 2) how the overall structure (genre and generic stages) of the history essays is organised, and 3) whether the linguistic resources applied to express temporal and causal meaning are compatible with the genre expectations. The findings of the study are presented in the following subsections: 4.1 findings connected to temporal meaning; 4.2 causal meaning; and 4.3 the genre and generic structure in relation to the resources of temporal and causal meaning applied by the CLIL history writers.

4.1 Temporal meaning

First, students' history essays were analysed in terms of temporal linguistic resources. The summary of the findings is presented in Table 11.

Table 11. Temporal linguistic resources applied in CLIL history essays.

TEMPORAL CATEGORY	**LINGUISTIC RESOURCES**		**NUMBER OF INSTANCES**						**TOTAL**
			L1	**L2**	**L3**	**L4**	**L5**	**L6**	
SEQUENCING	paratactic temporal conjunction			1					**1**
	temporal conj and dependent clause	*when*	4	2	3	1	1		**11**
		other		2				1	**3**
	external conjunctive Adjunct		1			1		1	**3**
	Process								**0**
	Ordinative			4	3				**7**
SETTING	Circumstance of time		6	17	7	2	2	10	**44**
DURATION	Circumstance of duration			2				1	**3**
PHASING	Process		6	5	3	2	1	2	**19**
	nominal group			1		1	1	1	**4**
	Circumstance								**0**
	external conjunctive Adjunct								**0**
SEGMENTING	nominal group						1	3	**4**
	nominalisation								**0**
	specialized terms		3	3	3	6	7	6	**28**
ORGANISING THROUGH TIME	Internal conjunctive Adjunct							4	**4**
	Internal Ordinative								**0**

4.1.1 Sequencing time

As the table shows, the most common sequencing resource applied in the students' history essays seems to be temporal conjunction *when* in dependent clauses (11 instances). There are only three instances of other temporal conjunctions being used (*after, until*).

> 1. The Industrial Revolution (I.R.) was the time **when** greater amounts of inventions spread rapidly around England, USA and France. (L5:1-2)
>
> 2. The revolution started from the textile industry **when** the cotton prices went down… (L1:12-13)
>
> 3. Only **after** john Ericsson invented the paddle wheel, the sailboats started loosing their power in the traffic on oceans to the steamboats. (L2:51-52)

However, as pointed out by Coffin (2000:158) and Schleppegrell (2004:131), there is a difference between temporal resources which refer to time and, on the other hand, resources of time which function as a scaffold of an explanation. In the data of this study, this distinction applies specifically to the use of the conjunction *when.* In (1), the temporal meaning of *when* as a relativizer of the preceding noun head *time (…the time when…)* seems to be clear but, in (2), *when* seems to express causality. This will be discussed in more detail in the section 4.2 of causal meaning.

Other sequencing resources identified in the data set of essays are three instances of external conjunctive adjuncts (*then, next*), external ordinative *first* (applied by two writers), and one instance of paratactic conjunction.

> 4. This machine was **then** developed more and more to get the machines that we have today. (L1:17)
>
> 5. New machines were invented (**first** steam pump by Thomas Savery) and some raw materials what were needed to industrialization, England got from its colonies. (L3:7)
>
> 6. Industrial revolution has its origins in England. It started from the textile industry **and then** spread out to the whole production of goods etc. (L2:8-10)

No instances of sequencing temporal processes such as *to ensue* were identified in the data set. Among temporal processes, however, phasal processes such as *to start* occur in the analysed essays. They will be discussed in the section 4.1.4 of phasing.

4.1.2 Setting and duration in time

Table 11 further suggests that setting is the most frequently applied temporal category in the data set of this study as instances of setting can be identified in all six essays, totalling 44 instances of use. Different time periods are referred to, such as a specific year (*in 1710,*

in 1807), a longer stretch of years (*during the late 1700s, between 1759 and 1840, in the 18th century*), a specific period of history (*before the Industrial Revolution, in the Industrial age*), and more indefinite periods of time which, however, are understood in their textual context (*at that time, in those times*).

> 7. The first simple steam engines had been build **in 1710**, but they were very slow and used lot of fuel. The break-through of seam was **in 1780s** when the Scottish James Watt invented his steam engine. It was very important for the industrial development **at that time** … (L2:35-40)

Contrary to setting in time, there are only few instances of the use of linguistic resources of duration in the sample texts.

> 8. Coal had already been used as fuel **for years**, … (L2:29)

4.1.3 Phasing in time

The temporal category of phasing (Table 11) is connected to the beginning, continuation and end of a historical event. The title given to the CLIL students by their history teacher, namely '*What conditions were necessary for the advent of the Industrial Revolution?*', focuses on the beginning stage of the period of Industrial Revolution. As a result, the phasing process *to start* has been repetitively used in the sample texts (17 instances). Only a couple of other phasing processes can be identified in the sample texts, both of them referring to continuity (*to continue, to last*).

> 9. The Industrial Revolution **started** in England when the Steam pump was invented to help people get water, instead of people carrying buckets full of water. (L4:5)
>
> 10. People **started** developing new machines to help themselves with work. (L1:18)
>
> 11. Coal also **continued** being used as fuel and source of energy (L2:33)

Nominal groups have rarely been used as linguistic resources for phasing in the sample texts (4 instances). L4 and L5 repeat the nominal expression of the essay title (*the advent of*), and L6 paraphrases the same expression *(the beginning of).* L2 uses a more original expression

> *12. Industrial revolution **has its origins** in England. (L2:8)*

No instances of circumstances or external conjunctive adjuncts as phasing resources were identified in the sample texts.

4.1.4 Segmenting

Segmenting refers to the representation of historical time as segments of time, often realised as nominal groups or specialized terms. In the sample texts, different varieties of the specialized term *Industrial Revolution* are frequently used (*the industrial revolution, industrial revolution, the revolution, the I.R.*), totalling 28 instances (see Table 11). Among the students, L6 makes use of a more varied repertoire of nominal groups referring to segments of time: *the age of agriculture* (L6:20), *the age of manufacture* (L6:20), *the Modern Ages* (L6:28).

4.1.5 Organising through time

As Table 11 suggests, the CLIL students of this study do not in general make use of the linguistic resources of internal conjunctive Adjuncts (*firstly*) nor Ordinatives (*first*) as rhetorical organisers to structure the text. Only L6 attempts this when numbering the causes of Industrial Revolution.

> 13. What resources had England got to start the Industrial Revolution? **1)** England used its colonies to have more raw materials and market area. **2)** It got rich by international trade what led to the richness of the upper middle class. **3)** Lots of carbon and iron in the ground of England. **4)** Cheap labour, because of the last increase of the population and lots of jobless people. (L6:14-19)

To sum up, the most frequently used temporal resources in the sample texts are the following: temporal conjunction in dependent clause (sequencing in time), Circumstance of time (setting in time), phasal process (phasing time), and specialized terms (segmenting). Coffin's (2006) analysis shows that the temporal categories of sequencing, setting and phasing are typically applied in recording genres whereas segmenting is more frequently applied in explaining and arguing genres. In the context of the sample texts, segmenting as a temporal category is practically realized through the repetitive use of the specialized term *Industrial Revolution*. On the other hand, incongruent temporal resources such as temporal processes could not be identified in the sample texts. Similarly, there were no instances of the use of internal ordinatives (*the first reason*), and only one simple attempt of the use of internal conjunctive adjuncts (L6). In other words, the rhetorical devices belonging to more abstract genres of explaining and arguing to order factors were not applied by the history writers.

4.2 Causal meaning

Secondly, students' history essays were analysed in terms of causal resources. Both congruent and incongruent causal lexicogrammar resources were identified in the sample texts.

4.2.1 Congruent causal linguistic resources

Several types of congruent causal linguistic resources were identified int the sample texts. The summary of the findings is presented in Table 12.

Table 12. Congruent causal linguistic resources applied in CLIL history essays.

CAUSAL REALISATION	LINGUISTIC RESOURCES	NUMBER OF INSTANCES						TOTAL
		L1	L2	L3	L4	L5	L6	
Congruent	Causal conjunction *because, since* + dependent clause	4	2	1	2	5	1	**15**
	Temporal conjunction *when* scaffolding explanation / realising causal logical relation	4	3	3	1			**11**
	Paratactic conjunction *and* scaffolding explanation /realising causal logical relation	5	4	3		1	2	**15**
	Circumstance of cause / reason (*because of*)	2		3	1		2	**8**
	Circumstance of cause / purpose (*to-clause*)	8			2		2	**12**
	Circumstance of means / manner (*by, through*)		1	1			3	**5**
	Causal conjunctive adjunct (*so*)	4			2	2		**8**

Conjunction

In the sample texts, congruent linguistic resources of hypotactic and paratactic conjunctions are most frequently used to express causal meaning. As Table 12 suggests, the most obvious hypotactic causal conjunctions *because* and *since* can be found in all sample texts, for instance in

> 14. …and the rich people get more money **because** they can mass-produce with these machines (L4:21-22)
>
> 15. - You could see the difference between rich and poor clearly **since** the rich had the newest inventions whilst the poor had some if any inventions. (L5:19-21)

In addition to causal conjunctions, also a temporal conjunction may function as a scaffold of an explanation (Coffin 2000:158; Schleppegrell 2004:131). In the sample texts, the hypotactic temporal conjunction *when* is used to realise causal logical relation, for instance in the following extracts:

> 16. The revolution started from the textile industry **when** the cotton prices went down… (L1:12-13)
>
> 17. **When** there was a lot of good iron available the industry got more and better machines. (L2:31-32)
>
> 18. Iron used to be made with iron ore and charcoal, but **when** there wasn't that much trees left (because of so massive use of charcoal), that way could not be used anymore. (L3:24-26)

In (16-17), clauses starting with the conjunction *when* construct causal meaning of *condition* without which the event stated in the other clause could not have taken place (cf. the concept of *determining causation*; Coffin 2000, 2006).

Finally, the add-on strategy of adding clauses to another, combined to the use of the paratactic conjunction *and* as a clause-level link, may scaffold explanation. The sample texts (especially L1 and L2) frequently apply this technique.

> 19. It [steamboat] was safe and good on the rivers and lakes, **and** helped the transport in those times a lot. (L2:46-47)
>
> 20. The revolution started from the textile industry when the cotton prices went down **and** people wanted more of it **and** the old methods of making cotton didn't produce enough. (L1:12-15)

In (19) and (20) the paratactic conjunction *and* realises causal logical relations as follows:

(19) The steamboat was safe and good on the rivers and lakes
--> **and** [the steamboat] helped the transport (…) a lot.

(20) The revolution started from the textile industry
--> when the cotton prices went down
--> **and** people wanted more of it
--> **and** the old methods of making cotton didn't produce enough.

The use of *and* as a clause-level link, together with the strategy of adding clauses to another, is typical of informal spoken-like language (Biber et. al. 2002:228). Therefore, contrary to the conventions of academic discourse, the writers of the sample texts rely on a strategy which intensifies the informal character of the text.

Circumstances

In addition to conjunction, as shown in Table 12, the use of circumstances of cause expressing reason (*because of*), purpose *(to-clause*), and circumstances of manner (*by, through*) is identified in the sample texts. However, while causal conjunctions were applied in all sample texts, the circumstances are applied by fewer writers, particularly by L1 and L6. Circumstances of cause / reason starting with *because of* are used by four of the writers, in a couple of instances standing alone as an incomplete clause, which contributes to the spoken-like informal character of the text (23).

> 21. But the factories had also some bad sides; while the rich people were getting richer from the factories, the poor people were getting poorer, **because of** so little pay. (L3:37-39)
>
> 22. There was a huge down fall in the living Conditions, **because of** Machines.(L4:17)
>
> 23. Why did the Industrial Revolution spread to the world? **Because of** development. (L6:26-27)

Non-finite to-clause is applied as circumstance of purpose by three writers, especially by L1 who uses it in a repetitive manner (24). Other examples are provided by L4 and L6.

> 24. James Hargreaves invented the spinning jenny **to make more cotton thread**. This machine was then developed more and more **to get the machines that we have today**. People started developing new machines **to help themselves with work**. (L1:16-18)
>
> 25. 1) England used its colonies **to have more raw materials and market area**. (L6:15)

Circumstances of manner (*by, through*), referring to enabling relations, and answering to the question 'how', are the most infrequent types of circumstances in this group.

> 26. Since England had some businessmen that had gotten rich **by the trade** it had funds … (L2:16)
>
> 27. That ment that the age of the agriculture was changing to the age of the manufacture, made possible **through technical progresses** (L6:20-21)

External conjunctive adjunct *so* is used in three sample texts. Along the continuum of formality, *so* belongs to the more informal end of the continuum, for instance, when compared to *therefore* (Biber, et.al.:393). As a result, the spoken-like character of these texts is intensified.

> 28. **So** we could say machines were taking over men's jobs. (L4:11-12)
>
> 29. The inventors were mostly middle class people – they had the knowledge and enough money to invent new things but not enough to manufacture them **so** the need the rich for manufacturing. (L5:30-32)

To sum up, the following congruent resources of causality are most frequently applied in the sample texts: causal conjunctions in dependent clauses, temporal conjunction *when*

and paratactic conjunction *and* scaffolding explanation, circumstances of reason and purpose, and external conjunctive adjunct *so.*

Among the writers who provide the data for this study, L1 seems to rely heavily on incongruent resources of causality in the history essay. The following extract (30) shows this.

> 30. These new machines could produce a lot more than a person could so they took over and many people ran out of business and had to move to the cities to find work in a factory. Because of this, the cities started growing and even more people moved there to find better jobs. (L1:19-25)

This extract can be analysed into clauses as follows:

These new machines could produce a lot more than a person could
--> **so** they took over [external conjunctive adjunct]
--> **and** many people ran out of business [*and* scaffolding explanation]
--> **and** had to move to the cities [*and* scaffolding explanation]
--> **to find work in a factory.** [to-clause /purpose]

Because of this; [circumstance of cause / reason]
--> the cities started growing
--> **and** even more people moved there [*and* scaffolding explanation]
--> **to find better jobs**. [to-clause / purpose]

When broken into clauses, the multi-layered structure of causal clauses relying on incongruent resources of causality becomes more visible. In this extract, logical relations of causality are realized between clauses, it means, clauses are linked with explicit paratactic and hypotactic conjunctions. As shown by Schleppegrell (2004) this type of reasoning is characteristic of informal interaction.

4.2.2 Incongruent causal linguistic resources

The main incongruent linguistic resources to express causality, namely external causal processes and nominalisations are applied relatively rarely in the sample texts. The most frequent material causal processes are (total number of instances in the sample texts shown in brackets) *to start (8), to provide (5), to help (5), to build (4), to manufacture (3).* Likewise, the most frequent mental causal processes are *to invent (19), to develop (7), to discover (4), to mean (4), to find (2), to lead to (2).* For instance, L2 uses causal material processes as shown in Table 13.

Table 13. Causal material processes applied by L2.

Clause no	**Agent** (^ = ellipted agent)	**MATERIAL PROCESS**	**Goal / Affected**
5	rich businessmen	TO START	the factories
5	a rapid growth of population	TO PROVIDE	cheap human labour
7	colonies	TO PROVIDE	raw material
7	colonies	TO HELP	the trade
17	funds	TO START	the mass production of cotton textile
19	which [a rapid increase of population]	PROVIDED	a lot of cheap human labor
41	^ [steam engine]	MADE INCREASE	the production
47	^ [the steamboat]	HELPED	the transport
57	by an English man called Richard Trevithick	WAS BUILT	the first train
63	all these events	HELPED	the industrialism in the world

Causal material processes are initiated by agents among which there are two incidents of human beings as agents, namely a generic group of rich businessmen and a historically noteworthy person (*Richard Trevithick*). Otherwise, the agents are generic groups of concrete items (*steam engine*) and countries / colonies, as well as abstract nominalisations (e.g., *a rapid growth of population*). Causal mental processes (shown in Table 14), on the other hand, are in most cases experienced by individual people who are regarded as historically noteworthy persons (e.g., *the Scottish James Watt*). The low frequency of causal processes connected to nominalised participants is an indicator of more informal spoken-like history writing.

Table 14. Causal mental processes applied by L2.

Clause no	**Experiencer**	**MENTAL PROCESS**	**Phenomenon** (^ = ellipted phenomenon)
2	-	WERE DISCOVERED	New sources of energy (or new ways of using it)
3	-	INVENTED	new machines and engines
14	An English man called James Hargeavas	INVENTED	the spinning jenny
15	-	WAS DEVELOPED	which [the spinning jenny]
39	the Scottish James Watt	INVENTED	his steam engine
45	an American Robert Fluton	INVENTED	the steamboat
53	john Ericsson	INVENTED	the paddle wheel
58	by George Stephensson	DESIGNED	^ [the first train]

In addition to causal material and mental processes, structures with possessive relational processes to express causal relations are used in four sample texts. Table 15 shows this structure as applied by L2.

Table 15. Possessive relational process applied to express causal relations (L2).

Clause no	Carrier	POSSESSIVE RELATIONAL PROCESS	Attribute
5	England	HAD	rich businessmen [[to start the factories]] ‖ and a rapid growth of population [[to provide cheap human labour]]. |
7	it [England]	HAD	colonies [[to provide raw material]] and [[to help the trade]]. ‖
17	it [England]	HAD	funds [[to start the mass production of (in this case) cotton textile]].
18	England	HAD	also a rapid increase of population, (19) << which provided a lot of cheap human labor to the factories >>. ‖

The structure consists of a noun (carrier) + possessive relational process + noun phrase with post-modification (to-clause / wh-clause, including transitive material process (*start, provide, help*). As shown by Table 15, L2 uses this structure in a repetitive manner, repeating the participant *England.*

Abstract causation, i.e., causal nouns such as *reason, factor, outcome, consequence*, have a minute role to play in the construction of causal meaning in the sample texts. Only two instances of the use of causal nouns are identified, both of them being repetition of the key term *condition* of the title of the essay *'What conditions were necessary for the advent of the Industrial Revolution?'.*

> 31. Many **Conditions** were needed for the advent or the start of the Industrial Revolution the biggest one would be the other Revolutions starting. (L4:1-2)
>
> 32. I think the main necessary **conditions** for the advent of the I.R. that there had to be rich people to manufacture or buy the product and they needed the poor people to work on / with the machines. (L5:22-24)

To sum up, incongruent resources of causality, namely external causal processes are applied relatively rarely in the sample texts. The low frequency of causal processes connected to nominalised participants is an indicator of more informal spoken-like history writing. A typical feature of explaining and arguing genres, namely abstract causation in the form of causal nouns is almost non-existent in the sample texts.

4.3 Genre expectations vs. students' linguistic temporal and causal resources

Thirdly, the genre and generic stages of the sample texts were identified. The title of the history essay, '*What conditions were necessary for the advent of the Industrial Revolution?*', seems to guide the students to apply the principles of explaining genres,

more specifically, those of the *factorial explanation*. The social purpose of the essay is to "explain the reasons or factors that contribute to a particular outcome" (Coffin 2006:75), in this case, the advent of the Industrial Revolution.

The CLIL history students have attempted the writing task with varying degrees of success. It appears all six writers aim at applying the generic structure of a factorial explanation in their writing: the generic stages of *outcome, factors* and *reinforcement of factors* are applied. So, the historical outcome (the advent of the Industrial Revolution) is identified at outcome stage, then its causes are elaborated, finally the factors are emphasised and evaluated at the reinforcement stage (Coffin 2006:68-69). As an example, extracts from two sample texts L1, and L6 attached as appendices 1 and 2, show an analysis of the generic structure of these texts.

Within the generic structure of a factorial explanation L1 seems to rely on linguistic resources typical of more informal interactive discourse, such as phasal processes (Table 11), paratactic conjunction (Table 12), and add-on strategy of adding clauses to another (examples 20 and 30). As a result, when approaching a more abstract genre of a factorial explanation, L1 still relies on temporal and causal linguistic resources of recording genres. On the other hand, L6 seems to have a slightly stronger control over the principles of explaining genres as the text is less dependent on the temporal unfolding of events for its structure, a more varied repertoire of nominal groups referring to segment of time is used, there is an attempt to apply resources of internal structuring of the text (the use of numbers 1-4 to indicate the causes of Industrial Revolution), and a couple of effective causal processes have been used (*lead to, mean*). However, linguistic resources for ordering causes in text time are still lacking. In general, the linguistic resources applied in sample texts to express temporal and causal meaning appear not to reach the level of abstraction expected by explaining genres. The core challenges of learners writing as they talk is identified in the sample texts.

5 DISCUSSION AND CONCLUSIONS

The aim of this study was to find out 1) how temporal and causal meaning is expressed in the CLIL students' history essays, 2) how the overall structure (genre and generic stages) of their history essays is organised, and 3) whether the linguistic resources applied to express temporal and causal meaning are compatible with the genre expectations.

The findings of the study show that when attempting to write a factorial explanation on a history topic CLIL students to a great extent rely on temporal resources which are typically applied in recording genres, such as sequencing resources of temporal conjunction and phasing resources (*to start*). On the other hand, incongruent temporal resources such as temporal processes were not identified in the sample texts. Similarly, there were no instances of the use of internal ordinatives (*the first reason*), and only one simple attempt of the use of internal conjunctive adjuncts to organise the internal structure of the text.

Likewise, congruent linguistic resources of causality are more frequently applied by CLIL history students than the incongruent ones. Thus, resources such as causal conjunctions in dependent clauses, temporal conjunction *when* and paratactic conjunction *and* scaffolding explanation, circumstances of reason and purpose, and external conjunctive adjunct *so* are common in the sample texts. In contrast, incongruent causal resources such as causal processes and abstract causal nouns are rare in the data set of CLIL history essays.

However, the analysis of the genre and generic structure of the sample texts showed that sample texts are to a great extent structured according to the expectations of explaining genre. As a result, the sample texts become a blend of a textual structure of a more abstract factorial explanation, combined to more congruent informal spoken-like temporal and causal linguistic resources typical of recording genres.

The findings of the study are in line with numerous studies of school-based literacy showing how learners rely on the grammar of informal interaction when writing academic texts (e.g., Schleppegrell 2004; Coffin 2006). Within CLIL this is connected to content teachers' minor role as teachers of the language of their own subject (Morton 2010).

This study has identified some linguistic obstacles on the CLIL history students' literacy pathway of historical discourse. The purpose of the linguistic analysis of the students'

history essays was not to focus on the weaknesses of the texts but to find ways of understanding and supporting the learning process of literacy within historical discourse. As the study was limited in terms of data and methodology, a more comprehensive linguistic analysis of a larger data set of student history writing at various levels of performance would offer a deeper understanding of the linguistic obstacles experienced by learners as well as provide tools for teachers to support their students.

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APPENDIX 1

L1: Generic stages

(1) The industrial revolution started from England during the late 1700s. (2) That was mainly (3) because England had money to start new factories (4) and the land was rich in coal and iron ore (5) and they had a rapid growth of population, (6) which provided cheaper human labor. (7) They also had colonies. (8) There they had many new raw materials to use that many other countries hadn't discovered yet or didn't have that much of. (9) They also could easily trade with the people living there, (10) because they had new raw materials that the people in England didn't have (11) and in exchange, they gave the colonies some of their new inventions.	Generic stage: Outcome identifying a historical outcome
(12) The revolution started from the textile industry (13) when the cotton prices went down (14) and people wanted more of it (15) and the old methods of making cotton didn't produce enough. (16) James Hargreaves invented the spinning jenny to make more cotton thread. (17) This machine was then developed more and more to get the machines that we have today.	Generic stage: Factors elaborating cause of historical outcome
(18) People started developing new machines to help themselves with work. (19) These new machines could produce a lot more (20) than a person could (21) so they took over (22) and many people ran out of business (23) and had to move to the cities to find work in a factory. (24) Because of this, the cities started growing (25) and even more people moved there to find better jobs.	Generic stage: Factors elaborating cause of historical outcome
(…)	Several generic stages of factors
(47) From England, the industrialism started spreading all over Europe and the United States. (48) Each invention got developed more and more into what they are today. (49) So the industrial revolution was one of the most important parts in history (50) because without it happening, people would most likely, still be using their hands to do most of the work (51) and it would be very hard to get from place to place.	Generic stage: Reinforcement of factors

APPENDIX 2

L6: Generic stages

(1) In Europe England started the Industrial Revolution in the later 1700s. (2) In England the conditions were very different between "the rising middle class" and the labour. (3) The rising middle class was mostly formed of merchants and business people. (4) They were rich enough to start the Industrial Revolution. (5) The labour people were able to realize the utopia of the rising middle class by producing those inventions and using them in their everyday work.	Generic stage: Outcome identifying a historical outcome
(6) Why did English people the start the Industrial Revolution? (7) Because those new rich middleclassers wanted better conditions for theirselves (8) and used incosiderately the labour people to improve their conditions. (9) They needed inventions, machines and factories: industry. (10) That was the beginning of the Industrial Revolution.	Generic stage: Factors elaborating cause of historical outcome
(11) Also the labour people needed machines. (12) Most of men were craftsmen in the 18th century (13) and the commonest work of women and children was knitting and spinning.	Generic stage: Factors elaborating cause of historical outcome
(14) What resources had England got to start the Industrial Revolution? (15) 1) England used its colonies to have more raw materials and market area. (16) 2) It got rich by international trade (17) what led to the richness of the upper middle class. (18) 3) Lots of carbon and iron in the ground of England. (19) 4) Cheap labour, because of the last increase of the population and lots of jobless people.	Generic stage: Factors elaborating cause of historical outcome
(…)	Several generic stages of factors
(35) The Industrial Revolution lasts still. (36) The lands of the "third world" are not developed as well as rich lands of the world. (37) Developing countries are attempting to industrialize. (38) Also in the other world development is going on all the time. (39) The signs of it are everywhere: new basic materials, new energy sources, inventions, new organization of production, application of science to industry, transportation and communication etc.	Generic stage: Reinforcement of factors