Integration of content and language pedagogies: cognitive discourse functions in the CLIL history classroom

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- A (very) short introduction to history education in Austria
- A theoretical inquiry into the role of language for teaching and learning historical competences
- Empirical evidence of the interconnectedness of cognitive discourse functions (CDFs) and historical competences
- A brief check-list for designing CDF- and competency-based history activities

1. Introduction

Until recently, CLIL (Content and Language Integrated Learning) research has mainly investigated aspects of language acquisition while CLIL teaching practice has been largely defined by content-focused curricula and materials (Llinares, 2015). Lately, however, researchers have started to highlight the importance of properly integrating content and language pedagogies, as the label CLIL would suggest (Dalton-Puffer & Smit, 2013).

One suggested notion that is genuinely interdisciplinary and able to meaningfully bridge language- and content-learning goals is the concept of cognitive discourse functions (CDFs). Dalton-Puffer (2013) defines CDFs as recurrent language patterns used to express and communicate thinking processes. To come up with a theoretically explicit as well as operationalizable construct, Dalton-Puffer (2013) reviewed a considerable number of academic language constructs which were then structured and condensed based on underlying communicative intentions about dealing with knowledge (cf. functional pragmatics, Ehlich & Rehbein, 1986), resulting in seven basic types of CDF, namely CLASSIFY, DEFINE, DESCRIBE, EVALUATE, EXPLAIN, EXPLORE, and REPORT.

This paper aims to find out to what extent working with CDFs overlaps with working on historical competences. Put differently, this study explores the role of language, in the form of

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This contribution is part of a special focus on upper secondary CLIL. Please see the introductory article “Introducing four papers on upper secondary CLIL. Crossing the divides between language and content subjects” by Dalton-Puffer & Smit (2018) for further information.

CDFs, for competency-based history education. For that purpose, the CDF-Construct will be mapped against the FUER (***F****örderung* ***u****nd* ***E****ntwicklung eines* ***r****eflektierten Geschichtsbewusstsein*)[2] competency model (Körber, Schreiber, & Schöner, 2007), which underlies the Austrian secondary history curriculum, on two levels:

First of all, the congruence of the CDF-Construct and the FUER model will be examined at the level of theory by identifying CDF-Types relevant for the performance and acquisition of all competences of the FUER model. Secondly, these overlaps will be indicatively cross-checked from an empirical perspective via an analysis of two didactic units about the *Industrial Revolution* taught in two Austrian history CLIL classrooms.

These two levels of analysis are encapsulated in the following research questions:

RQ1

> Can the CDF-Construct be mapped onto the Austrian curricular model of history education (FUER) in a meaningful way (analysis of concepts)?

RQ2

> Do learners realize FUER historical competences via cognitive discourse functions in naturalistic history lessons and if yes how (empirical analysis)?

Answering these two research questions will also shed light on the usefulness of the CDF-Construct as an interdisciplinary tool in the context of CLIL history education.

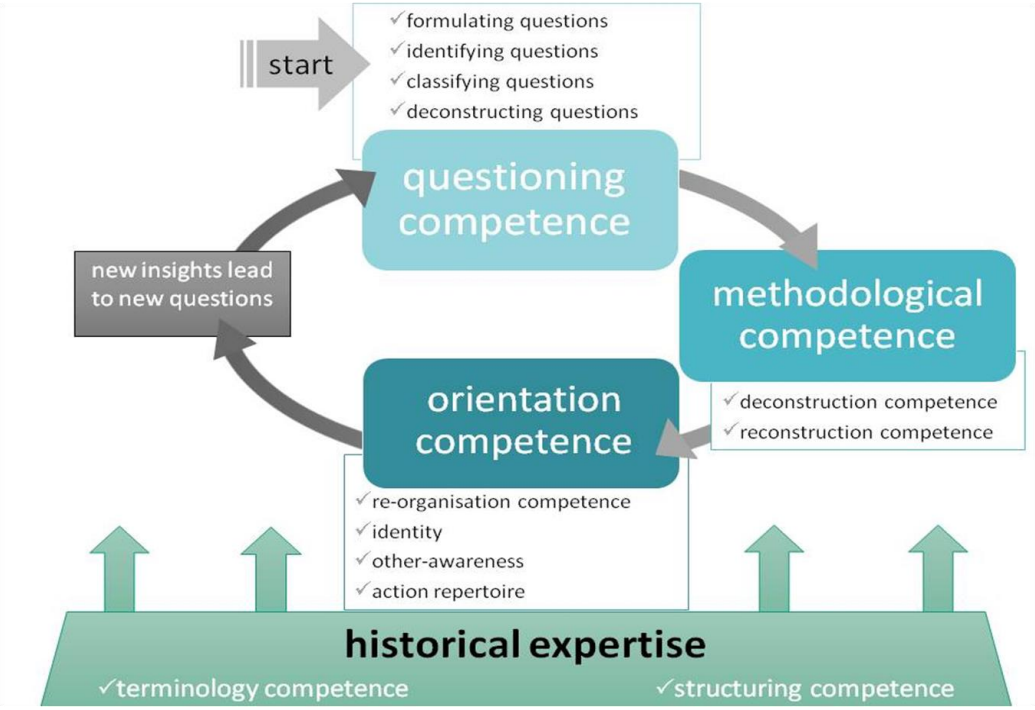
However, before these questions can be answered, the FUER model will be briefly introduced. For more information on the CDF-Construct, see Dalton-Puffer (2013, 2016).

2. A (very) short introduction to history education in Austria

Following a paradigm shift to a more competency-based approach, the Austrian curriculum and new final exam (Matura) now centre on the acquisition of historical competences as defined by the FUER research group (Körber, Schreiber & Schöner, 2007). Key aspects of this model are self-reliance, responsibility and reflection as students should be willing and able to apply their skills responsibly and autonomously (cf. Weinert, 2001). The FUER model describes a cyclical thought process (see Figure 1) based on four different main skills:

[2] Translation: *promotion and development of a reflective historical awareness*

Figure 1: FUER competency model (Körber et al., 2007), translations by Bauer-Marschallinger (2016)



1) In this model, the starting point of historical thought is *questioning competence*, which is concerned with paying attention to historical questions and issues (*identifying, classifying and deconstructing questions*) as well as asking one's own questions about the past (*formulating questions*).
2) As a next step, learners are supposed to find answers by turning to historical sources, for which they need *methodological competence*, consisting of two sub-skills. First, students should analyse the source on several levels (*deconstruction competence*). Once they have deconstructed a number of sources and compared results, the learners should synthesize these pieces of information into one narrative (*reconstruction competence*).
3) These narratives should be used to orientate oneself in the present and manage one's historical awareness. This set of skills is termed as *orientation competence* and includes the ability and willingness to use these newly gained insights to alter one's historical awareness (*re-organisation competence*) and *identity*, to take over other perspectives (*other-awareness*) and to develop a set of tools that might be useful for facing other present or future problems (*action-repertoire*).
4) *Historical expertise* does not form a distinct step in the process of historical thought. Instead, this competence is concerned with knowledge management, which is necessary for the whole process. *Historical expertise* consists of two sub-competences, namely *terminology competence* which is about understanding and accurately using historical terminology and *structuring competence* which describes the ability to organize and structure historical content.

At the end of a historical thought process, new questions might arise, initiating a new cycle.

3. Analysis of concepts

All competences and their subskills have been hermeneutically analysed by looking at their connections to language, i.e. how these skills are likely to be realized in terms of CDF use.[3] For example, when students deconstruct a historical source, they might need to:

- identify the type of source (CLASSIFY)
- DESCRIBE the source
- DEFINE relevant terms
- EVALUATE its historical value
- EXPLAIN motives of the author/ artist
- compare it to other sources (CLASSIFY)
- make hypotheses about the source (EXPLORE)
- REPORT results

Table 1 presents an overview of the analysis of concepts, indicating which CDFs might be relevant for the performance of the individual (sub-) competences within history.

Table 1: Overview of competences & CDFs[4]

	CLASSIFY	DEFINE	DESCRIBE	EVALUATE	EXPLAIN	EXPLORE	REPORT
questioning competence	✓			✓	✓	✓	✓
methodological competences	✓	✓	✓	✓	✓	✓	✓
orientation competences:							
other-awareness	✓		✓	✓	✓	✓	✓
identity	✓			✓		✓	✓
re-organisation	✓			✓	✓	✓	✓
action-repertoire	✓		✓	✓		✓	✓
historical expertise	✓	✓	✓	✓	✓	✓	✓

These results suggest that the CDF-Construct is indeed compatible with the FUER competency model as each competence, in theory, requires a broad range of CDF-Types and each CDF-Type is connected to several skills. Therefore, it seems that competency-based history teaching as specified by the curriculum is closely linked to language in the form of CDF use.

[3] For a full discussion on the theoretical congruence of the FUER competences and CDF-Construct, see Bauer-Marschallinger (2016, chapter 3).

[4] Not-specified sub-skills share the same CDF relations as their superordinate skill.

4. Empirical study: mapping CDFs and FUER competences onto classroom discourse

The outcomes of the analysis of concepts were also examined empirically via lesson observation.[5]

4.1 Research context

The empirical part of the study was conducted in two different secondary schools in Vienna (details see Table 2 below), both offering CLIL as an option. In these bilingual branches two to three subjects are taught in English every year. Furthermore, the teachers are regularly accompanied by a native speaker teacher whose main task is to encourage students to speak the target language and provide linguistic support in terms of vocabulary, pronunciation, and spelling.

The units observed and analysed were not specifically designed for this study and focus on the *Industrial Revolution* (IR), which is listed in the curriculum of both lower and upper secondary. However, the two units address slightly different aspects as a result of the different grade levels. The lower secondary students also had to come up with written group reports on one aspect of children and the IR, which were also added to the corpus.

Table 2: Overview of participants and data

School	**School A**	**School B**
Number and age of students	25, age 12-13	17, age 15-16
Teachers	T1 (history, EFL), T2 (US native speaker teacher)	T1 (history, geography), T2 (UK native speaker teacher)
School type	public academic lower secondary	private academic upper secondary
Oral data	4 lessons, 9484 words	4 lessons, 12770 words
Written data[5]	171 exam responses 7 written reports (1516 words)	150 exam responses
Total number of CDF realisations	256 (written & spoken data)	389 (written & spoken data)

4.2 Research process

The lessons, including group work phases, were filmed as well as partly transcribed, only covering content-related utterances. Then, all student productions were coded twice, once applying the categories of the FUER model and once applying the seven CDF-Types. The CDF categorisation was based on assumed underlying communicative intention. These utterances (or sequences) were also qualitatively analysed with regard to lexico-grammatical aspects. The analysis presented here focuses on a discussion of the most apparent forms

[5] In the diploma thesis, the links between CDFs and FUER competences were also examined via written competency-based tests. For these results, see Bauer-Marschallinger (2016, chapter 6).

(e.g. cohesive devices, modality etc.) which helps provide an accurate representation of the classroom reality.

A central aspect of the empirical analysis was comparing the results of the two different categorisation processes in order to establish connections between competences and CDF-Types. These overlaps were quantitatively described in terms of frequency and visualized in heatmaps (see section 5).

To exemplify the analysis, an extract taken from a lower secondary group report is provided below:

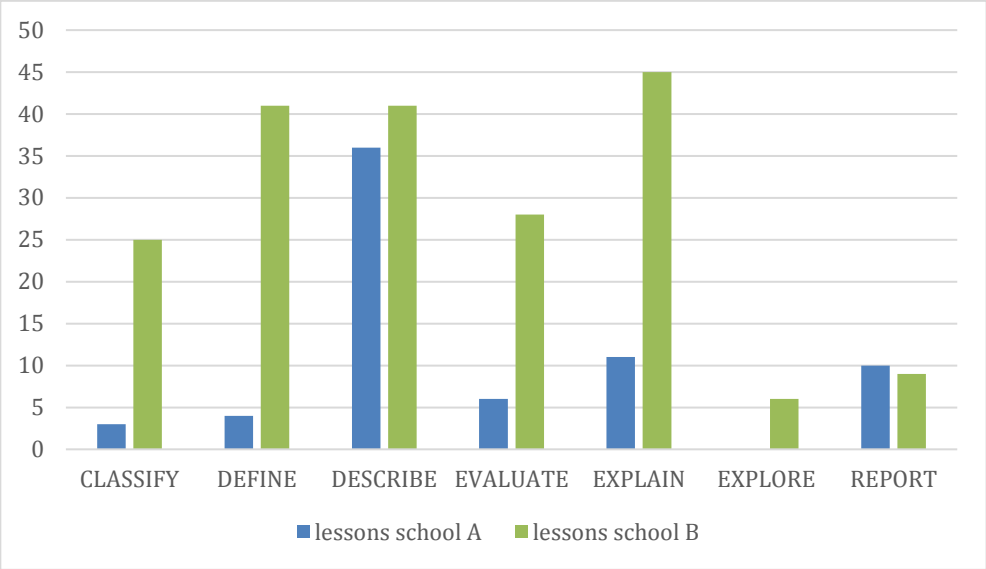
> *Most woman had lots of babies **becouse** [sic] birthcontrol was not widespread. Although child-bearing was dangerous and many woman died at it. This **was caused by** queen Victoria who had nine children. The royal house became a model for many woman. If a woman gave birth to five, usually only three survived **because of** childhood diseases*.

Here, the students tried to come up with a historical narrative explaining demographic change in Victorian times. As such, this sequence was identified as an example of *reconstruction competence* and EXPLAIN. Linguistically, the students used different strategies to express cause-effect relationships, which have been marked in bold in this extract. Apart from the typo, *becouse* and *because of* are used correctly. The *caused-by* construction, however, is inaccurately linked. Phrased like this, it would mean that Queen Victoria were to blame for high maternal mortality. This misunderstanding is enforced by an imprecise anaphoric use of *this*. When reading on, it becomes somewhat clearer what the students were trying to say.

5. Findings

In total, the students produced 265 CDFs in the lessons observed, with 73% appearing in the upper secondary context (Figure 2). The lessons in school B, the upper secondary class, were very dense in terms of content and activities whereas younger students often talked about something unrelated to the task at hand. As can be seen in Figure 2, DESCRIBE was the most common CDF-Type in both groups, which corresponds to similar studies concerned with other subjects (e.g. Hofmann & Hopf, 2015; Kröss, 2014). In terms of frequency, EXPLAIN, DEFINE, EVALUATE and CLASSIFY follow on a rather similar scale. Yet, significant differences can be observed between the age groups. REPORT, however, was almost equally used by both groups while EXPLORE (last rank) was only produced by upper secondary students.

Figure 2: CDF distribution in the lessons



The overlaps of CDF-Types and historical competences in the classroom data are summarized in Figure 3 and 4 below. The absolute numbers of the co-occurrences of competences and CDF-Types are reflected by the intensity of the shade (in relation to the total number of this particular data set). In other words, the darker the shade, the more frequently these two categories overlapped in the respective data set.

As for the lower secondary data set, these three observations are most noteworthy:

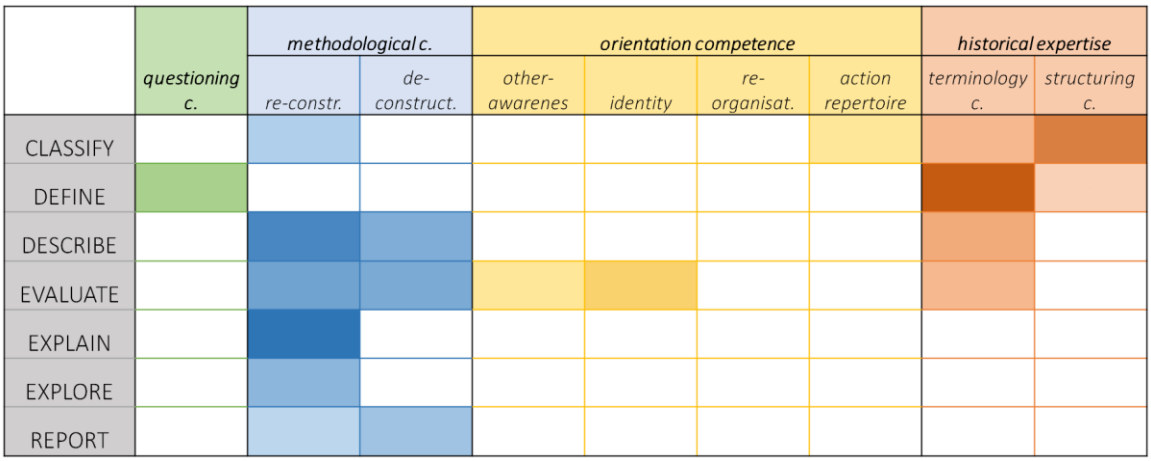
- *Questioning competence* and *historical expertise* are very rare and restricted to only one CDF-Type in this data set.
- Learners frequently reconstructed their own narratives, which mainly consist of descriptions, without ever critically analysing any source (*deconstruction competence*).
- EVALUATE seems to be the prime CDF-Type for *orientation competence*.

Figure 3: Overlaps of FUER model and CDF-Construct in the lower secondary classroom

	questioning c.	*methodological c.*		*orientation competence*				*historical expertise*	
		re-constr.	*de-construct.*	*other-awarenes*	*identity*	*re-organisat.*	*action repertoire*	*terminology c.*	*structuring c.*
CLASSIFY									
DEFINE									
DESCRIBE									
EVALUATE									
EXPLAIN									
EXPLORE									
REPORT									

The overall picture changes when turning to the upper secondary classroom data (Figure 4). For example, *methodological competences* as well as *historical expertise* diversify linguistically. Put differently, the more experienced students demonstrated a greater variety of competences and performed these via a wider repertoire of discourse functions.

Figure 4: Overlaps of FUER model and CDF-Construct in the upper secondary classroom



6. Conclusion

The analysis of concepts suggests that the CDF-Construct and the FUER model are indeed a good match as the performance of historical competences theoretically rests on a wide range of different CDF-Types (RQ1). Furthermore, the empirical data also suggests a strong connection between the two constructs, indicating that **CDFs are an inextricable element in working towards historical competences** in the lessons observed (RQ2). As such, Dalton-Puffer's construct proved to be a useful heuristic for competency-based history education.

Nevertheless, explicit reference to any CDF-Type could only be rarely observed. Finally, CDF use varies according to content goals, target competence and grade level. Concerning grade level, the more experienced students did not only produce quantitatively more and longer sequences but also qualitatively better CDF realizations in terms of greater lexical and structural variety.

The results of this study imply that subject (CLIL) teachers should be more aware of the interplay between language and subject-specific competences. Moreover, the findings further indicate that teaching CDFs explicitly could not only promote language development but could also be beneficial for the acquisition of subject-specific skills. A first, tentative guideline how this could be done in a CLIL history setting is provided on the following page. However, further (translational) research is necessary to better understand the conceptual links between content and language and, more specifically, to provide more systematic and extensive research-based guidelines concerning the integration of content and language learning, ensuring that educational research can be carried into the classroom.

Application Box

- ✓ When preparing competency-based activities, try to think about **language demands** of your tasks (i.e. Which CDFs do learners need to meaningfully perform the task?)
- ✓ With your target group in mind, decide **which functions** you want your students to use and be **explicit** about it. For example, instead of asking them to 'analyse' the historical source, you could break up the task into its individual operations.

Here is an example: [To clarify the relationship between tasks and CDF-Types as well as competences, target CDF-Types are indicated by SMALL CAPS and competences by *italics*]

TASK – political consequences of the Industrial Revolution

Look at this political cartoon and do the tasks below. Argue with what you see on the picture and what you know from the lessons.

1) Describe the cartoon. [DESCRIBE - *deconstruction competence*]
2) This caricature was produced in 1894, which is long after the peak of the Industrial Revolution. Explain to what extent it is still connected to the Industrial Revolution. [EXPLAIN: give reasons - *deconstruction competence*]
3) Discuss the artist's intentions for producing this cartoon. [EXPLAIN motives/ EXPLORE - *deconstruction competence/ other-awareness*]
4) Argue whether (or in which ways) this cartoon is still relevant in the 21st century. [EVALUATE - *re-organisation competence*]

Cartoon retrieved from https://www.workdayminnesota.org/day-historys/pullman-strike-investigation

- ✓ Now, think about **lexico-grammatical aspects** needed to perform these CDF-Types. For instance, when asked to explain, are your learners able to connect causes and consequences adequately? Think about how you could support them to successfully realize the target CDFs.

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