English for Specific Purposes 62 (2021) 58–69

Contents lists available at ScienceDirect

English for Specific Purposes

journal homepage: http://ees.elsevier.com/esp/default.asp

An analysis of the use of cognitive discourse functions in English-medium history teaching at university

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ARTICLE INFO

Article history:
Available online 29 December 2020

Keywords:
Discourse patterns
Competences
Knowledge
Cognitive discourse function
English-medium instruction
University

ABSTRACT

In this paper we focus on teachers' use of discourse functions as transmitters and builders of content knowledge in the context of English-medium instruction (EMI) at the university level. Couched within the construct of Cognitive Discourse Function (CDF) (Dalton-Puffer, 2016), we analyze 6 two-hour lessons delivered by three lecturers in history. In line with the competences set out by the Spanish Ministry and the Department of History at the University of the Basque Country (Spain) for the history degree, this analysis allows us to examine how cognitive functions are operationalized in real classroom language. The study aims to analyze whether CDFs are instrumental in the acquisition of competences in history. Our findings reveal that teachers frequently use complex CDFs by combining different types of discourse functions to achieve their communicative goals and pave the way for students' acquisition of history competences. We conclude by putting forward some refinements and specifications of CDFs in terms of what is required by history as a discipline.

1. Introduction

English-medium instruction (EMI) is becoming a key concern in many universities around the world because it is perceived as an unavoidable part of higher education institutions' internationalization process, to the extent that is has become "an almost taken-for-granted quality" (Saarinen & Nikula, 2013: 146). However, many teachers embark on EMI without having had any previous training and are left on their own to face the different challenges posed by teaching in a foreign language. O'Dowd (2018) carried out a survey to which 70 European universities from 11 countries responded and observed that 30% of them provided no training courses, and half failed to offer courses on the integration of content and language (if offered, courses were exclusively focused on the development of communicative skills). In most institutions language concerns are not contemplated in language policies and this lack of concern at the meso level (the institution's language policy) trickles down to the micro level (the EMI classroom). In fact, other studies from beyond the European context have also consistently revealed that EMI teachers, irrespective of their specialization, consider that language teaching falls outside their remit and that they cannot be held responsible for language teaching (Doiz, Lasagabaster, & Pavón, 2019; Byun et al., 2011; Jiang, Zhang, & May, 2019; Lasagabaster, 2018; Sert, 2008).

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https://doi.org/10.1016/j.esp.2020.12.002
0889-4906/

However, if students are to succeed in their EMI courses, they need to become familiar with the specialized language and norms that pertain to each disciplinary field, so that they are enabled to produce written and spoken products that comply with the disciplinary culture concerned (Dafouz & Smit, 2020). The need to develop students' disciplinary discourse knowledge becomes therefore indispensable and EMI teachers should support their students' ability to build sequences of discourse which flow and have cohesion (Llinares, Morton, & Whittaker, 2012). Each discipline primes discourse functions in a different manner. In the case of history, meaning is produced through particular language functions, such as causality, comparison and justification, and the language employed is characterized by some specific features, such as nominalizations, cause–effect relations, and terms glossed with appositive phrases, among others (Lorenzo, Granados, & Ávila, 2019).

The interaction between teachers and learners thus plays a key role in the construction of knowledge, because classroom discourse becomes "a semiotic mediator of knowledge construction with respect to curriculum content" (Haneda & Wells, 2008: 114). Haneda and Wells (2008) state, by engaging students with a topic in a foreign language, EMI teachers can help to scaffold students' transition from everyday to scientific language. If students are to develop their discursive competence, they need to be offered many examples of the use of discourse functions and ample opportunities to practice them. Although it has to be acknowledged that university history students have already gone through some of the stages of this transition, the literature on scaffolding disciplinary language has mainly been conducted at the pre-university level (Dalton-Puffer & Bauer-Marschallinger, 2019; Llinares et al., 2012; Lorenzo et al., 2019; Whittaker, Llinares, & McCabe, 2011) and much less attention has been paid to higher education.

A distinction between the oral and the written mode needs to be made, as they mediate discourse functions and differences may be found between the two modes (Ädel, 2010), since the immediacy of the oral mode fosters greater involvement and the use of more engagement features to deliver classroom content (Hyland, 2005). As the latter author points out, discourse functions are context-dependent and are closely related to the norms and expectations of those who use them in specific settings, which leads us to the concept of *genre*. Paraphrasing Hyland (2005), we could define genre as a term for grouping oral texts together that represents how speakers use language to respond to recurring situations, such as those found in a specific discipline (history in our case) when lecturing. Since lectures usually represent "the prototypical genre of information transfer" (Hyland, 2005: 10) at the university level, our analysis is focused on EMI lectures characterized by a teacher-fronted teaching style, that is, the academic lecture genre.

With this in mind, in this paper we focus on teachers' use of discourse functions as transmitters and builders of content knowledge, from which students can model the discursive patterns of their field of specialization. The analysis of the teachers' discourse is couched in the construct of Cognitive Discourse Function (CDF) (Dalton-Puffer, 2016) and conducted in the light of the competences that students are expected to acquire by the end of their studies. Following Morton (2020) the ultimate goal of the paper is to illustrate how content, literacy and language are connected.

2. Cognitive discourse functions

Dalton-Puffer (2016: 29) defines CDFs as "verbal routines that have arisen in answer to recurring demands while dealing with curricular content, knowledge and abstract thought." According to her, the study of CDFs will allow researchers to establish the connections between subject-specific learning goals and how they are approached in EMI classes. If EMI teachers understand how such connections are established, they can not only decide what content they are going to teach, but also how they are going to talk about it.

It is in this regard that CDFs come to the fore as they play an important role in building bridges between content teaching and language teaching. ESP (English for specific purposes) teachers can successfully support their EMI colleagues and the learning of language and the subject matter (Banegas, 2018), but if ESP researchers are to assist "learners to gain the literacies and skills necessary to navigate a diverse range of complex academic discourses" (Lee & Subtirelu, 2015: 52), a first step should consist in teasing out CDFs. After this first step, ESP researchers could support their EMI colleagues by designing ESP modules aimed at helping students specialize in disciplinary specific language. This would become a cogent process to justify the need to complement EMI with ESP modules.

Against this backdrop, one of the main challenges faced by researchers has been the need to categorize academic language functions and whittle down their number. For instance, previous studies have resorted to observation checklists to compare the different discourse functions performed in foreign language tests such as IELTS, Cambridge Proficiency or dialogic tasks in oral university tests (Brooks, 2003; Ffrench, 2003; Varcasia, 2019), but the long list of discourse functions analyzed and the analytic method itself (namely observation checklists) has impeded researchers from drawing practical implications.

In an attempt to develop a more manageable framework by reducing the number of academic language functions, Dalton-Puffer proposes a CDF construct which is made up of seven components (as described in Table 1) that should prove helpful to both researchers and teachers. In the case of the former, by enhancing the CDFs' visibility and thus the possibility of analyzing them. In the case of the latter, because this classification will enable them to reflect on their use of CDFs and eventually to foster their ability to teach CDFs to their students. In addition, this construct would provide both content and language teachers with a framework with which to approach the integration of content and language, as they could use it as meta-language to talk about what takes place in EMI classes, while making "language a natural concern of non-language educators" (Dalton-Puffer & Bauer-Marschallinger, 2019: 33). The construct thus aims at capturing the "verbalizations linked to cognitive processes that are routinely performed in the course of dealing with curricular content while working towards curricular goals in formal education" (Dalton-Puffer et al., 2018: 9).

Table 1
The construct of CDFs (source: Dalton-Puffer, 2016: 32–33; Dalton-Puffer & Bauer-Marschallinger, 2019: 35).

Function type	Communicative intention	Performative verbs
Categorize*	I tell you how we can cut up the world	Classify, compare, contrast, exemplify, match, structure, categorize, subsume
Define	I tell you about the extension of this object of specialist knowledge	Define, identify, characterize
Describe	I tell you details of what can be seen (also metaphorically)	Describe, label, identify, name, specify
Evaluate	I tell you what my position is vis-a-vis X	Evaluate, argue, judge, take a stance, critique, comment, reflect, justify
Explain	I give you reasons for and tell you cause/s of X	Explain, reason, express cause/effect, deduce, draw conclusions
Explore	I tell you something that is potential	Explore, hypothesize, predict, speculate, guess, estimate, simulate
Report	I tell you about something external to our immediate context on which I have a legitimate knowledge claim	Report, inform, summarize, recount, narrate, present, relate

*The label CLASSIFY has been replaced by the term CATEGORIZE by Dalton-Puffer and Bauer-Marschallinger (2019) as the former is semantically broader.

As Dalton-Puffer herself (2016: 33) acknowledges, the boundaries between these seven categories are not always as clear-cut as she wished, and sometimes they even include each other: "DEFINE always contains CLASSIFY, but not all occurrences of CLASSIFY are part of DEFINE" (capital letters in the original). In the following paragraph we will briefly describe the main features of each category (for more details see Dalton-Puffer, 2013, 2016; Dalton-Puffer & Bauer-Marschallinger, 2019).

CATEGORIZE entails the detection of relevant features or patterns. DEFINE expresses some kind of class membership (an X is Y). DESCRIBE takes place when a listener/reader is informed about observable features or qualities. A speaker/writer provides details about an object, person or event and the description can be physical (outward characteristics), functional (purpose of something) or process-related (steps and procedures). EVALUATE involves determining the value of something based on previous knowledge (I am going to tell you my personal stance). EXPLAIN ascribes the causes of events. However, since EXPLAIN can be too broad and comprehensive, Dalton-Puffer constrains it to giving reasons and causes, and to giving an account of one's intentions and motives. EXPLORE has to do with making predictions or assumptions about something that will happen, happened or we would like to happen (modal verbs and adverbs are characteristic of this CDF). REPORT involves indicating what happened (what, when, who, under what circumstances). Summarizing is thus a key feature of this discourse function.

While it is obvious that students need to become familiar with the vocabulary of each specialization if they are to express knowledge, vocabulary on its own is not enough. They also need to engage in such activities as classifying, defining, and describing, for instance, and to use the "subject specific ways of thinking and communicating" of the field (Vollmer, in Morton, 2020: 8). In other words, students need to master the linguistic patterns associated with the different CDF types as these are necessary to fully comprehend subject matter (Lorenzo & Dalton-Puffer, 2016). Therefore, and apart from vocabulary, CDFs are "the other main pillar" (Dalton-Puffer, 2016: 52), which is why there is a need to understand how EMI teachers model CDFs in their classes, since "genres are constructed on lexicogrammatical features and functions on the proper articulation of words and structures" (Lorenzo et al., 2019: 10).

In the following section we will summarize the main findings of the studies that have relied on the CDF construct as conceptual framework in EMI settings. Since this is such a new construct, the number of studies to be reviewed is limited.

3. A review of studies based on the CDF construct in EMI settings

As mentioned in the introduction, the distinction between the oral and written modes should be borne in mind, as there are differences in CDF realization, depending on the genre. Our study is focused on the academic lecture genre, which is why it represents an extension of previous studies (Breeze & Dafouz, 2017) at the university level which revolve around the written mode, as we will see below.

The validity of the CDF construct was confirmed in a series of studies which took place in the Austrian context, all of them in CLIL (content and language integrated learning) classrooms in which the content-subject was taught in English; it has to be noted that at pre-university level the use of the acronym CLIL is much more common than that of EMI. Dalton-Puffer et al. (2018) conducted five small-scale studies in five different subjects (biology, physics, economics, history and EFL) to analyze which CDFs were detected and to what extent they were used in oral classroom interaction. All the data were gathered in secondary schools in Austria. The corpus consisted of between six and eight 50-minute lessons per learning group and all the 12 teachers involved had German as their L1. The aggregate results demonstrated that the CDFs never received conscious attention. As for temporal distribution, in the CLIL lessons 1.5 CDFs per minute were used on average, while in the EFL classes 1.2 per minute. Although all CDFs types occurred irrespective of the subject, they were not equally distributed: the most observed was *describe*, followed by *explain* and *define*, whereas *explore* and *evaluate* were sidelined. The CDFs were organized in two hierarchical levels. The primary level encompassed a single function, whereas the secondary level included longer stretches of talk that incorporated other CDFs to achieve a communicative goal. One of the studies encompassed in Dalton-Puffer et al. (2018) is that by Bauer-Marschallinger (2016), in which the author found a strong connection between

CDFs and competences in history in CLIL history classes, which reveals that the CDF construct is relevant for the classroom reality. Most connections were identified by validating the theoretical model (the FUER model that defines the content knowledge and the competences to be achieved in the history school subject in Austria) through the empirical part of the study, which suggested that "CDFs are necessary to develop historical competences" (Bauer-Marschallinger, 2016: 110). However, the author also acknowledged that the study only presented tendencies since no comprehensive evaluation was performed.

Also in the Austrian context, Dalton-Puffer and Bauer-Marschallinger (2019) carried out a study to delve into the links between CDFs and competences in history. These researchers observed and recorded eight CLIL history lessons on the topic of the Industrial Revolution and examined both oral and written CDFs. The first history teacher was also an EFL teacher, whereas the second teacher did not teach any language subject but was experienced in teaching CLIL. The study focused on students' production and scrutinized eight lesson transcripts, seven written reports and 42 exam papers. The older students (15/16-year olds) produced more CDFs than the younger ones (12/13-year olds). DESCRIBE was by far the most prominent CDF in both lessons and tests, EXPLAIN second in lessons and fourth in tests, DEFINE ranked third, and EVALUATE was fourth in lessons and second in tests. The presence of CATEGORIZE and REPORT was rather low, and EXPLORE was used very seldom (neither teachers nor tasks boosted hypothetical thinking). It is worth noting that the realizations of REPORT were longer and more extensive than any other type. The authors conclude that all CDF-types were found in classroom interactions, which seems to confirm that the construct is "relevant for classroom reality" (p. 54). Overall, the results revealed a significant connection between CDFs and competences and that the construct could therefore be used for competency-based tests design.

Breeze and Dafouz (2017) explored CDFs in tertiary-level writing by comparing EMI and Spanish-medium students. The participants were 30 Business Administration students whose exam performances were divided between high and low-level answers in two of the four questions on an exam. The authors intended to assess the "usefulness of the CDF construct in identifying successful and unsuccessful outcomes in such student writing" (p. 82). Due to task requirements, the first question prompted DESCRIPTION and CLASSIFICATION CDF types and the second question DESCRIPTION and EXPLANATION CDFs. The results confirmed the potential of the CDF construct in EMI university contexts for the purpose of explaining (un)successful performance in both languages. This was especially evident as regards the complex combination of different cognitive functions due to the linguistic challenge they posed to students, "which means that being able to express the integration of the CDFs is an essential aspect of developing disciplinary competence" (p. 88). The low-level answers were a clear indication of the need to pay more heed to disciplinary literacies on both languages and to expose students to structured help about essential CDFs and genres by means of writing support activities or even programs.

In sum, it is worth noting that the two Austrian studies (Dalton-Puffer, et al., 2018; Dalton-Puffer & Bauer-Marschallinger, 2019) were conducted in secondary education, whereas ours was conducted at university level. In any case, the findings of these two studies indicate that CDFs contribute to the achievement of competences when subjects are taught in a foreign language. The third study was conducted at the higher education level, as our study, but Breeze and Dafouz (2017) focused on students' CDFs in a written exam, whereas ours focuses on the realization of CDFs by teachers during their lectures. Our study will thus deepen our understanding of the role that CDFs play in EMI oral interactions while university teachers are lecturing, which will allow us to analyze how different types of CDFs contribute to the development of competences in the history degree. Since the questions posed, the explanations provided and the tasks to be completed at university may be more complex than those identified at other educational levels, the CDFs used by EMI teachers in their lectures will more than likely also be more complex than those found in pre-university teaching contexts (Breeze & Dafouz, 2017).

4. The study

With the previous literature review in mind, in this paper we address the following research question: Which CDFs are used by lecturers in support of three history degree competences, outlined in 4.1? The present is a convenience sample as we chose history rather than another discipline because we had the opportunity to carry out this study in collaboration with our history colleagues, who were willing to participate.

The main innovative feature of this study lies in the fact that it was carried out at the tertiary level, more specifically undergraduate level classes, where the EMI label is more common than CLIL. Although CLIL programs are frequently characterized as being content-driven and paying little heed to language forms, it can be affirmed that this trend is even more noticeable at university level. According to Evans and Morrison (2011: 207), EMI university lecturers take "little or no account of the quality of students' English." Another interesting issue that is analyzed in this paper concerns the characteristics of CDFs since, as stated earlier, the CDFs required at the university level may be more complex than those found at other educational levels (Breeze & Dafouz, 2017; Dalton-Puffer, 2013).

A second novel aspect revolves around our focus on teachers' production of CDFs in naturalistic EMI classroom discourse within the same specialization, namely history. Yet, by zooming in on teachers of the same field we were able to analyze the realizations of CDFs by expert instructors, while examining their pedagogical performance. The different CDF types will be contextualized in the light of the competences (see Section 4.1) defined by the Ministry of Education, Culture and Sports and the Department of History of the University of the Basque Country (UBC), in Spain.

This analysis allows us to pinpoint the linguistic resources habitually used in different CDFs in EMI classes, and how cognitive functions come to be operationalized in real classroom language. Our intention is to answer the challenge raised by

Dalton-Puffer et al. (2018), when they stated that a further necessary line of investigation should tackle the linguistic realization of CDFs by classroom participants. Such a realization of CDFs may serve as evidence for the need to develop language support materials, training courses for EMI teachers, or interventions in team teaching experiences to boost the collaboration between language (ESP) and content teachers (Breeze & Dafouz, 2017; Dalton-Puffer et al., 2018).

4.1. History degree knowledge and competences

Against the backdrop of the European Area of Higher Education, education at primary, secondary and university levels is based on the acquisition of competences. The Ministry of Education, Culture and Sports in Spain has established five *competencias básicas* (basic competences) that students of any degree are expected to acquire by the end of their undergraduate studies at Spanish universities (BOE, 2007). At the local level, universities have the power to define a set of competences of their own, referred to as *competencias transversales* (transversal competences) and *competencias generales* (general competences), which are shared by all the degrees offered by the university. Additionally, universities may include another set of competences that are specific to the degree, *competencias específicas* (specific competences) (see Catálogo competencias titulaciones, n.d. or "Catalogue of competence by degree," for a detailed definition of the four types of competences). In this study, we have analyzed three competences of the degree in history at the UBC: two general competences (competences 1 and 2), and the third, a specific competence (competence 3). The competences read as follows (authors' translation from Memoria verificada, n.d. or "Verified guidelines of the discipline"):

By the end of their studies, a student of history will be able to

1) provide an account of the historical events and processes discussed in the course and establish links between them and the present time. A learning outcome is the ability of the student to interpret the relevance of characteristic artifacts and objects as a reflection of the socio-political, economic and spiritual characteristics of an era and their relationship to present time societies.
2) recognize the existence of different perspectives in the account of historical processes and events and their contextualization in time.
3) use specialized terminology to talk and write about the topics covered in the courses appropriately.

Other competences from the list of competences included by the Department of History in the UBC in the document "Verified guidelines of the discipline" were referred to by the teachers in their course descriptions. For example, the teachers also stated that, "by the end of the course the student will be able to learn the methodology and the basic techniques to conduct research in history and will be able to organize and gather materials and sources of information," "the student will be able to work in groups within their disciplines and in interdisciplinary groups, revealing interpersonal skills," but these competences could not be analyzed in whole class lectures as the ones examined in this paper, which is why they were not considered. We selected the three competences provided above because they were particularly targeted by the teachers in their classes.

4.2. Participants

In an attempt to monitor the possible impact that academic discipline may have (Kuteeva & Airey, 2014), all the EMI teachers in the Department of History at the UBC were contacted to request their participation in the present study. They were informed that the study was part of a research project aimed at fostering the collaboration between language and content teachers at the UBC. Five teachers responded positively, but only the three male teachers whose teaching schedule coincided with the time frame for the data collection process of the project were chosen. Table 2 contains information on the subject these teachers taught, teaching experience in general and teaching experience in EMI. As for their language competence in English, the three participants had an equivalent of the C1 level of the Common European Framework of Reference for Languages, as this is a prerequisite to be allowed to participate in the so-called Multilingualism Program at the UBC.

The Multilingualism Program at the UBC was implemented in the 2005/06 academic year with a view to fostering the use of foreign languages as a means of instruction. Initially courses in English, French and German were designed, but German was soon eliminated due to lack of student interest and nowadays English reigns supreme with around 97% of courses in foreign languages being offered in English; the remaining 3% are French-medium. In addition to requiring formal qualifications at C1 level, the UBC is one of the few Spanish universities (O'Dowd, 2018) that organizes in-house teacher-training courses on the

Table 2
The participants.

	Subject	Years of teaching experience	Years of teaching in EMI
Teacher 1	World economic history	21	5
Teacher 2	America in the modern age	25	7
Teacher 3	Early modern history I	16	2

specifics of EMI or how to improve teaching in EMI. At the time of the recordings, the three participants had taken at least one of these courses: teacher 1 (1 course), teacher 2 (2 courses) and teacher 3 (2 courses).

4.3. Method

Once the UBC's ethical committee gave the go-ahead to the project, the co-authors of the paper approached the lecturers and explained the aim of the research. After obtaining the teachers' agreement to be observed and videotaped, the students were also informed and their consent forms were gathered. The data consisted of naturally occurring interactions (Hynninen, 2012) during EMI history courses. The recordings, which amounted to 6 two-hour lessons (two lessons per teacher), were carried out by the team of researchers involved in the project and were later transcribed by a research assistant. The transcription of the different classes were then checked by one of the co-authors to ensure fidelity to what actually took place in each class. Unless addressed by the teacher or the students, the researchers did not take part in the lectures and endeavored to have a non-intrusive presence. The excerpts included in this paper are verbatim transcriptions from the participants' teaching; hence, ungrammaticalities, inaccuracies and repetitions have not been eliminated or resolved. The symbol # indicates a pause, (??) that it is not clear what the speaker said, and […] to note that some sentences which are not relevant for the point we are making have been eliminated for space constraints. T1, T2 and T3 stand for teacher 1, teacher 2 and teacher 3, respectively, and S for student (since the students were not the focus of this paper, all the students were referred to as S). The CDF type is capitalized and included between square brackets (e.g. [EVALUATE]) (Dalton-Puffer, 2016). The authors' of this paper categorized the CDFs in the extracts included here.

As stated above, six lectures were observed, recorded and analyzed. Teacher 1 discussed the migration of Chinese people from the north to the south up to the fourteenth century and the adoption of rice agriculture. In his other lesson analyzed, he explained the causes of economic growth according to Adam Smith. Teacher 2 dealt with the organization of the political system in America under the Spanish empire (lesson 1), and talked about the evolution of the geographical knowledge through the interpretation of maps and the advances in technology in the medieval ages that enabled the discoveries of new lands (lesson 2). Teacher 3's first lesson focused on the birth of the modern states in the 15th and 16th centuries in Europe and his second lesson discussed the colonization of America.

Following Dalton-Puffer and Bauer-Marschallinger (2019: 42), our criterion for categorizing a sequence or an utterance as a type of CDF was the "underlying communicative intention and cognitive function and not the occurrence of any specific keyword." The two co-authors of this paper worked independently and analyzed the data manually in order to identify the CDFs. The final decisions were made by consensus. In the data that will be analyzed in Section 5, the textual sequences leading to the identification of the CDFs provided in square brackets for each of the extracts are composed of a word or syntactic constituent which immediately precedes the CDFs. It has to be noted that in the excerpts below we do not include all CDFs but just those of our research interest at each particular point.

5. Results

In this section we discuss each of the three competences individually and the CDF types that the teachers used in their discourse to support them. No descriptive statistical analysis of the CDF types was conducted, but the examination of the data provided the two authors of this paper with an impressionistic overview of which types were used the most or the least.

5.1. Competence 1

In order to support the development of competence 1 (to give an account of the historical events and processes discussed in the course and establish links between them and the present time), the teachers took the following three sets of actions. They (i) DESCRIBEd, REPORTed, EXPLAINed and EVALUATEd historical events and processes; (ii) they introduced and DEFINEd the characteristic objects and artifacts of the particular era they were discussing and their relevance both for past and for later historical developments; and (iii) they established potential links between the historical and the present-time events and processes. That is to say, the teachers presented the historical accounts through the CDF types DEFINE, DESCRIBE, REPORT, EXPLAIN and EVALUATE. In addition, we encountered complex CDFs (Breeze & Dafouz, 2017; Dalton-Puffer, 2013) in which EXPLAIN and/or EVALUATE substantiated REPORTs, DESCRIPTIONs and DEFINITIONs. The CDF EXPLAIN, which was very common in our teachers' discourse, was realized through many linguistic forms, among which "because" and "that's why" stood out as the most frequently used especially by the least proficient teacher in English, teacher 3. Unlike teacher 1 and teacher 2, teacher 3 relied on his written notes frequently. His speech was characterized by hesitations, repetitions and a more limited vocabulary range than teacher 1's and teacher 2's (UCLES, 2011). By contrast, teacher 1 and teacher 2 used more sophisticated alternatives such as "this enables," "this led to," "for the simple reason that," "this paves the way", "the outcome is".

Excerpt (1), illustrates teacher 1's use of a complex CDF in a well-grounded description of the Chinese economy in the first centuries of the Christian era. As can be seen, the CDF is made up of the CDFs DESCRIBE, EVALUATE and EXPLAIN. Note that the teacher was expressing his opinion (e.g. "surprisingly", [EVALUATE]) and was asking the students to provide an explanation for the description rather than doing it himself ([EXPLAIN]).

Except (1): World economic history

T1: maybe you remind # that I told you # that the Chinese economy # during the first centuries of the Christian era # was # mmm # surprisingly [EVALUATE] # quite close to # a communist economy [DESCRIBE]. Why [EXPLAIN]?
T1: can # anybody here # tell us? (*he asks a student*)
S: okay # because [EXPLAIN] the eh because the # government controlled the # economy […].

In excerpt (2) the CDFs REPORT and EXPLAIN were employed to construct the historical account and explain its consequences. Unlike excerpt (1) which contained a description, here an event was reported.

Excerpt (2): Early modern history I

T3: for instance # the Spanish # kings ## validate or confirm # the Vizcayan laws # okay?
T3: or were suppose to # validate # the # the local # the local laws # okay?
T3: when Philip #reached the power in Spain # and came # from # from # France # remember that # eh he came # he came from France # he validate # he confirm # the # eeeh # Guipuzcoan # laws # okay? [REPORT] […]
T3: but # they [the kings] # the first thing they # they did # was to # ask for the validation [REPORT].
T3: why? [EXPLAIN]
T3: because it was supposed to be the first king # of the new # eeem # dynasty # okay?

The teachers also included the discussion of artifacts and objects in their historical account in support of competence 1. These were characteristic of a historical period and led to developments in present-day societies. To mention just a few objects, teacher 3 defined "the apologetics", that is to say, "writings praising the king's image," as a clear illustration of the influence of absolutism (i.e. the concentration of the power in the king's hands) in Europe in the 17th and 18th centuries. Teacher 2 described and evaluated "maps" in the light of the new geographical knowledge that resulted from the geographical discoveries that took place from the early 15th century into the early 17th century. He also characterized "the astrolabe," an artifact which was critical for the discoveries of new territories (excerpt 3).

Excerpt (3): America in the modern age

T2: and advances actually started # very very early # in the # in […]
T2: xxx the first one ## the first one is a devise # called the astrolabe [DEFINE]. […]
T2: so # the # only important thing is that # this device # permitted # to a certain extent # several changes ## eh?
T2: that # eh # permit and able # this liberation of the sailors # from the dictatorship # of # having to go # very # always close # to the land. [EXPLAIN] […]
T2: so as you can see # changes in technology # some of them imported from # outside Europe # others # eh # created in Europe # that led to what? [EXPLAIN]
T2: to huge development # during the 14th and 16th centuries # in # the art # of ship making making # bigger # and more accurate # and better ships that # were able # to # endure # the hard commissions of sailing # in the open # seas # basically in the Atlantic.

Finally, the links between past situations and modern times were frequently found in the teachers' discourse. In excerpt (4), for example, the consequence of the expansion of farming rice in an area of China for the present time is provided [EXPLAIN] and the teacher's stance regarding its relevance is given once again [EVALUATE].

Excerpt (4): World economic history

T1: the consequences # the repercussions [EXPLAIN] # brought # by the wide use # of rice # what they call # xxx *(noise)* # in China # in southern China # in the Yangtze valley # from the medieval period. [REPORT]
T1: well # first consequence [EXPLAIN]? # absolutely basic [EVALUATE]: # the colonisations [REPORT] # of the Yangtze valley # and # particularly # of the delta of the river # what the Chinese called # the Yang Nam region # even today # okay?
T1: this is important [EVALUATE] # because # remember # Yang Nam ## is here # is in the delta # of the Yangtze # and here is where # today # some of the most important Chinese cities # are placed.

Once again, excerpt 4 shows the complexity of the CDFs found in the lectures. In the present case, the passage selected illustrates the CDFs EXPLAIN, REPORT and EVALUATE.

5 2. Competence 2

In line with competence 2 (to recognize the existence of different perspectives in the account of historical processes and events and their contextualization in time, [EVALUATE]), the teachers made sure to include different points of view in the discussion of facts ([DESCRIBE], excerpt 5), the definition or understanding of historical events ([DEFINE], [EVALUATE], excerpt 6) and the description of situations ([EVALUATE], [DESCRIBE], excerpt 7). The scholars' points of view are clearly coded in expressions such as "some estimates (…), other estimates" (excerpt 5), "some people are saying that … I don't agree with that" (excerpt 6), or "many scholars and historians […] although I think that from my personal point of view […] (excerpt 7). Note the complexity of extract 6, where three different CDFs are found in a three-line passage.

Excerpt 5: World economic history

T1: according to some estimates [EVALUATE] # around twenty million Chinese # even thirty million people live # here (in Yang Nam) # in the fifteen # and sixteen centuries ## okay? [DESCRIBE]

T1: and # other estimates [EVALUATE] # suggest that # this amount # could have been higher [DESCRIBE], # because # some scholars think # that # the size of Yang Nam population during the 16th and 17th centuries # must have covered # around forty million people # okay?

Excerpt 6: America in the modern age

T2: and eh some of the people are saying that this is a revolution [DEFINE] # because is the first moment in which eh # this idea of a new continent # eh # appears [EXPLAIN]. Well # I don't agree with that [EVALUATE].

Excerpt 7: World economic history

T1: according to many scholars # and historians # China # was on the eve # of an industrial revolution [DESCRIBE] # in this time # although I think that # from my personal point of view # of course # this is # rather an exaggeration # okay? [EVALUATE]

But the existence of different points of view was also reflected in the choice of the terms used to provide the historical account. This is why the teachers, particularly teachers 2 and 3, raise students' awareness of the fact that terms can be ideologically-driven. A very interesting example is the terms to refer to the Spanish overseas territories, namely, "empire", "colonies", "the kingdom of the Indies" and so on. Teacher 2 discusses the implications of using one term or another ([DEFINE], excerpt 8) and then invites the students to make their own informed choice ([EVALUATE], excerpt 8). We will discuss this issue in more detail when we deal with competence 3.

Excerpt 8: America in the modern age

T2: instead of using xxx the kingdom of # of the Indies # instead of speaking about the colonies of America # xxx the moment in which # something called criollismo in # in Spanish # so this eh eh eh # self xxx of # the inhabitants of America # about being different # and about being relegated by ## the European Spanish # was something that was in xxx [DEFINE].
T2: so # something that ## yeah.
T2: so # even the Spanish # official # lang # political language actually used # the term ## em # empire # when it was created # with this meaning.
T2: so # on the other side # people accept the system of the co # colonial system # when referring to # the Spanish territories # in the Americas [DEFINE].
T2: you can elect # whatever you # you wish.
T2: There's a debate.
T2: I've got my decision # […] and you will notice that # in different # in different eh eh text # and different authors # they will have different perspectives #[EVALUATE]. just to know # mm # where # eh where those per # perspectives # are coming from.

All in all we have seen that the historical account which was supported by the CDF types DEFINE, REPORT and DESCRIBE was subject to different perspectives (EVALUATE). The acknowledgement of different perspectives on historical accounts and the importance of the choice of the terms that were used to refer to them were an essential part of the history lessons.

5.3. Competence 3

The development of competence 3 relied on the teachers' systematic and detailed definition of specialized vocabulary in the classroom. Hence DEFINE appeared to be the CDF type most frequently found in the passages dealing with specialized terminological issues. It is noteworthy that, in general, definitions were easily identified by the students as they normally took the linguistic form of "X is Y" ([DEFINE], excerpt 9: "star chamber"), "X is the term used to …" ([DEFINE], excerpt 10: "paddy field") and "X means" ([DEFINE], excerpt 11: "res publica"). However, other strategies were also used, such as "X as Y" ([DEFINE], excerpt 12: political communities), the juxtaposition of the term in question and its definition, in which there is no explicit element encoding the semantic relationship between the two elements ([DEFINE], excerpt 11: "res publica" "things related to states"), or the provision of examples illustrating the term instead of a definition ([DEFINE], [CATEGORIZE], excerpt 13: "specialization"). These linguistic realizations may have been more difficult and too sophisticated for the students to interpret as instances of the CDF DEFINE and more than likely depended on the students' awareness of the teacher's communicative intent in order to be interpreted correctly. Interestingly, the teachers tended to rely on additional strategies to support the CDF DEFINE, such as the repetition of the terms and multimodality. For example, they frequently wrote the new terms on the blackboard to ensure that the students knew how to write the word correctly and as a sign that a definition was going to be provided (see excerpts 9, 10, and 11). They also employed visual stimuli, as in the case of the referents of the new terms that can be found in movies (excerpt 10: "paddy fields").

Excerpt 9: Early modern history I

T3: The star chamber *(writing on the board)* ### which was the royal # council [DEFINE]

Excerpt 10: World economic history

T1: paddy field # is the term # commonly use # to describe # to refer # to the # rice fields. [DEFINE]
T1: have you ever heard # the expression paddy fields? *(writing on the board)*
T1: have you ever seen # movies such as Rambo # Apocalypse Now # and so on?
T1: there # you always see the same pictures # paddy fields.

T1: and you see # the Vietnamese peasants # working # these paddy fields # mm?

Excerpt 11: Early modern history I

T3: today we're going to start # with a new # subject ## which is ## called # the res publica. ## In Latin # res publica # means [DEFINE] # eh # republic # okay?
T3: but # literally # means # the # the public thing # okay?
T3: the public thing # eh the state # Res publica (*writing on the board*) ## public # public things # okay? the state # things related # to # states [DEFINE].

Excerpt 12: Early modern history I

T3: so # eeeeh # we must think about # political communities # as # creations # okay? [DEFINE]

Excerpt 13: World economic history

T1: according to Adam Smith # there is a basic way of economy growth # which is # the specialization [DEFINE/CATEGORIZE] # okay?
T1: […]
T1: if you are good # in producing rice # what you have to do # is basically # to produce rice # nothing else # okay?
T1: if on the contrary # you are good # in # producing wine # in that case # you will have to focus # on wine production.
T1: and the same applies # if you are good # for instance # in # manufacturing # cotton textiles (*the teacher provides other examples*)
T1: this is the whole idea of specialization [DEFINITION].

The specialized meaning of the terminology was such that the CDF DEFINE sometimes needed to be constrained to the field of history by the teachers. This is the case of the term "profit," which was stated to be part of the lexicon used by "historians and economist historians", in contrast to "yields" which was generally associated with other disciplines such as agriculture (see excerpt 14, [DEFINE]). Note the choice of the inclusive "we" (namely, "historians and economist historians") to emphasize the register of the word "profits."

Excerpt 14: World economic history

T1: […] ## generally speaking # the term used ## by economists # and # economist historians # is profits *(writing on the board)*.
T1: so # what's the translation of profits?
T1: what does # profits ## mean in Spanish [DEFINE]?
T1: o *rendimientos* (*Spanish for yields*).
T1: okay? xxx *(noise)* speaking # yields is also *rendimiento* [DEFINE].
T1: not # *beneficio* (benefit) # in Spanish, # so yields # or yield # is the term # we basically use # for talking about agriculture. # When we are talking about # trade # we usually use profits.

The linguistic realizations of the CDF DEFINE put forward by the teachers reflect the dynamic nature of language, whereby the meaning of words changes over time. For example, during our class observations we noted that the teachers explicitly stated that the interpretation of a term depended on the historical period in which it was used. This is crucial as the interpretation of a word within the wrong spatio-temporal context may lead to anachronism (see excerpt 15: "freedom", [DEFINE]) or misunderstandings (excerpt 16: "nation", [DEFINE], [EXPLAIN]). Hence, as the excerpts reveal, the teachers were very focused on helping students understand how concepts should be understood in a given context.

Excerpt 15: Early modern history I

T3: the concept of freedom # at this time [DEFINE] is # […]
T3: is not # a freedom # as today # we we can do# what [whatever] we want # more or less # okay?
T3: at this time # the freedom is # to be respect # your privileges # okay?
T3: that's what it means. [DEFINE]

Excerpt 16: Early modern history I

T3: so ## what is the difference between # the medieval nation # and the modern nation # mm? [DEFINE] […]
T3: that's why [EXPLAIN] # sometimes when people # speak about it [the concept of nation] ## in the medias # they're speaking about a different concept # okay?
T3: […] that's why # many many times # when nowadays also we # i i on medias aaah # we # we listen # when we listen to the medias and we # we hear speaking about the nation # people # misunderstood the concept # why?
T3: because some of them are speaking about the medieval # concept of nation # and others # others are speaking about the modern # concept # of nation # okay? [EXPLAIN]

Finally, teachers often supported and complemented their definitions of specialized terms with other CDFs in order to help students develop a full understanding. For instance, the definition of the term "absolutism" was complemented with the CDFs DESCRIBE and EXPLAIN (excerpt 17), and "equal field system" with REPORT and EVALUATE (excerpt 18):

Excerpt 17: Early modern history I

T3: during medieval # time # power was divided into different # aam # into different eeeh # scales # okay?

T3: but at # at this point # the # the the the power # started being concentrated # okay?
T3: concentrated ## in king's hand [DESCRIBE] # of course ## that's why [EXPLAIN] we call [DEFINE] also this process # absolutism # absolutism.
T3: okay?

Excerpt 18: World economic history

T1: and # the government # every year # distributed land # among the peasant families # among the farmers [REPORT] # […]
T1: these allocations # these distributions # were revised # each year # depending always # on the number of people # living # in the household # under the same roof # okay? [REPORT]
T1: so # this is the starting point # of # our class # because # this kind of system ## seen this name # is # remember # it's equal field system *(writing on the board)* ### this system ## was # very useful [EVALUATE] # its objective was # to promote xxx peace # and social stability [DESCRIBE].

It is quite interesting that the word defined in excerpt (17), "absolutism," has a similar Spanish equivalent (*absolutismo*). Hence, the teacher's decision to define the term "absolutism" may appear to be unnecessary; it is quite safe to assume that understanding it should not pose any problems to the students. However, the definition of this term allowed the teacher to establish a contrast between the way things were at two different times [DESCRIBE]. Moreover, it gives rise to the opportunity to explain the choice of this term as a way to mark the beginning of a new historical period [EXPLAIN]. In contrast, in excerpt (18), the term "equal field system" was defined through the occurrence of a series of events (CDF REPORT), a description of its functions (DESCRIBE), and the inclusion of the teacher's personal view regarding the impact of the concept (CDF EVALUATE). Note that once again, the teacher wrote the term on the blackboard to signal the importance of the term.

Excerpts similar to 4, 6, 17 and 18 were quite frequent in the teachers' discourse. They illustrated the complexity of CDFs (Breeze & Dafouz, 2017; Dalton-Puffer, 2013), in particular of the CDF DEFINE, and the tendency to resort to a combination of CDFs in order to provide a full-fledged characterization of the terms.

Our study has revealed that the teachers displayed the whole range of the CDFs posited by Dalton-Puffer (2016) while teaching history, although in our data not all CDFs were equally covered. The most frequent CDFs were DESCRIBE, which was used in the description of the teachers' historical accounts, EXPLAIN, in which the cause/s, the reason/s and the repercussions of X were included, and DEFINE. Thus, all the teachers spent time ensuring that the students were acquainted with the historical events (DESCRIBE, REPORT) as well as the reasons for their occurrence and their consequences both in the past and in the present (EXPLAIN). It is quite clear from the teachers' discourse that knowing why things happened and why things are the way they are is as important to them as knowing what happened and how things were in the past. In fact, arguing is regarded as the most advanced stage of historical thinking and involves the teachers' and the students' ability to make personal judgements and to take an ideological stance (Lorenzo et al., 2019). Therefore, it is no accident that reasoning is considered as a vital part of classroom instruction.

The widespread use of the CDF DEFINE in the teachers' knowledge construction discourse was clearly motivated by the need to make history-specific terms accessible to the students. These terms may be new coinages that refer to historical developments, situations, and characteristic artifacts that students might not be familiar with, and which are essential to the historical account. But they may also be terms that are also in general use, albeit with a different meaning. The CDFs REPORT and EVALUATE were also quite prevalent, although our impressionistic analysis of the data has revealed that the former was not as recurrent as DESCRIBE. By contrast, the latter was common. A one-sided portrait of history is not what the teachers wanted to put forward in their lessons and they frequently exposed their students to diverse perspectives (including the teacher's own view). Were the EVALUATE CDF type not present in the classroom reality or were it not fully-fledged (low-level CDFs according to Breeze and Dafouz's terminology, 2017), students would encounter many difficulties when it comes to making personal judgements and they would not be exposed to different language models. Lastly, the CDFs CATEGORIZE and EXPLORE were used the least, which may be a consequence of the fact that they were not so closely related to any of the competences for the degree. However, we did find a few instances of the CDF EXPLORE, mainly in teacher 1's speech when he tried to engage the students in making predictions about situations and events. On these occasions his goal was to help students have a better understanding of the historical issue addressed in the lesson.

6. Conclusions

This study has shown that the theoretical CDF construct is a useful tool for understanding the teachers' transmission of knowledge, while unveiling its potential to facilitate the acquisition of the competences specified for a history degree at the UBC. However, our data has also revealed that the characterizations of some CDFs need to be slightly adapted to capture the particularities of the discipline. Firstly, the CDF EVALUATE, i.e. the provision of the speaker's viewpoint on a matter or historical accounts, needs to be widened to include scholarly perspective other than the speaker's. As stated above, the inclusion of differing points of view is one of the competences that history students are expected to acquire. It is part of the content learning process and the subject literacy in history to acknowledge the possibility of differing historical accounts and it is the teachers' responsibility to provide opportunities for students to learn how to adopt a critical view. Secondly, we have also seen that the meaning of words to refer to historical developments and phenomena may change over time. This means that the CDF DEFINE, which facilitates students' use of specialized vocabulary as stated in competence 3 of the history degree, needs to include the temporal or historical perspective in the understanding of words and concepts. As we have seen, failure to do so may have serious consequences because it may lead to the misinterpretation of historical events and misunderstanding.

Thirdly, the CDs DESCRIBE and REPORT should also include the temporal component as teachers frequently relate past and present time events and situations. Establishing these connections is crucial to understanding history and current realities, as outlined in history degree competence 1.

As far as the organization of CDFs in two hierarchical levels (Dalton-Puffer et al., 2018) is concerned, our findings indicate that a secondary level of CDFs was very common in the EMI lectures under scrutiny. Even in short stretches of talk, such as those in excerpts 4 (EXPLAIN – REPORT – EXPLAIN – EVALUATE - REPORT) and 6 (DEFINE – EXPLAIN – EVALUATE – DESCRIBE - EVALUATE) for example, different types of CDFs were realized to achieve the lecturers' communicative goals. The high presence of secondary level CDFs seems to confirm that this complexity is typical in academic lecturing genre and would support the concept of "complex CDF" proposed by Breeze and Dafouz (2017). These authors define complex CDF as that which involves "more than one cognitive operation and more than one type of discourse function" (p. 90). Research in other academic disciplines would allow researchers to confirm that such complex CDFs are found across the board at university level, both in the oral (as in our study) and the written (as in Breeze & Dafouz, 2017) modes.

The main limitation of our study has to do with the limited number of participants (three), as the results may be mediated by individual teaching styles (Dalton-Puffer & Bauer-Marschallinger, 2019). As for future research, the use of CDFs by the same teachers in both their L1 and the foreign language could be analyzed, so as to examine whether differences are found depending on the language of instruction. Following this line of research, Costa and Mariotti (2017) observed the same lecturer delivering the same two lectures for an EMI and an Italian-medium group and observed that there were discourse-related differences: more signposting and structuring of speech, more redundancy through repetitions, paraphrases and examples, more display questions, and a lower speech rate for the EMI group. An interview with one lecturer confirmed that switching languages required changes in the teaching style, which may also affect CDF use. Dafouz and Núñez (2010) also compared the same lecturers' language use in L1 and EMI and detected differences regarding the types and realizations of metadiscursive devices, as a wider variety was found in the Spanish data. Another line of research could be to compare native English speakers teaching in English with the results obtained from non-native speakers and check whether CDF types are realized differently by each group. An additional niche for research could be carved by means of the co-validation by history experts of the categorization of extracts as representing specific learning goals, as the current categorization was exclusively based on the interpretations of the researchers, who are applied linguists. This would boost the desirable interdisciplinary collaboration between language (ESP) and content teachers, as demanded by many EMI researchers (Author, 2018; Dafouz & Smit, 2020).

The study of CDFs may help EMI teachers reflect on the importance of language in knowledge construction and transmission, so that they eventually conclude that "they are not doing the language teachers' job but actually teaching their subject in a very substantial way" (Dalton-Puffer, 2016: 30) by providing an approach that brings together the "dimensions of content, literacy and language" (Morton, 2020: 8). If teachers do not show how the different CDFs can be realized through rich and well-structured examples, their students will find it very complex to use them successfully on their own in exams or classroom presentations. Therefore, teachers should explicitly address and topicalize oral literacy in history, as "CDFs need to be turned into pedagogical objects and students required to actively perform them" (Lorenzo & Dalton-Puffer, 2016: 66).

Funding

This work was supported by the Spanish Ministry of Economy and Competitiveness [grant number FFI2016-79377-P]; and the Department of Education, University and Research of the Basque Government [grant number IT904-16].

Declaration of competing interest

None.

Acknowledgements

We authors would like to thank the teachers involved for their invaluable collaboration and willingness to participate in this study.

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