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RESEARCH ARTICLE



# Metadiscourse use when shifting from L1 to EMI lecturing: implications for teacher training

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## ABSTRACT

**Purpose:** Research on EMI (English-Medium Instruction) has addressed the extent to which content lecturers speaking in their L1 perform as well as when they lecture in English. In this study a lecturer who gave the same lecture in his L1 (Catalan) and English was observed to examine if and how transitioning from one language to another impacts his use of metadiscourse.

**Methodology:** Drawing on Adel's taxonomy (2010), data from four lectures were obtained to compare the quantity and quality of metadiscursive items in the L1 and EMI lectures.

**Findings:** Findings show that the lecturer made a similar use of metadiscourse across languages of instruction, suggesting that EMI does not always affect the use of metadiscourse. A closer analysis of the content of the lectures suggests that metadiscourse seems to be determined more by the complexity of the lecture content rather than by the language of instruction.

**Value:** These results substantiate the need for bespoke training that accommodates to different lecturer profiles in terms of English proficiency, pedagogy and the complexity of the content to be taught.

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## KEYWORDS

Metadiscourse; teacher training; EMI lecturer performance; spoken academic discourse; lecturing skills; task complexity

## Introduction

A plethora of research in English-medium Instruction (EMI) revolves around EMI lecturers' difficulties in conveying their content clearly and understandably whilst students' complaints about their EMI lecturers' poor oral fluency have also been long documented (Ackerley, Guarda, and Helm 2017; Ball and Lindsay 2013; Hellekjær 2010; Macaro et al. 2018). Lecturers' proficiency in English may clearly have a bearing on their teaching style, their delivery and the overall comprehensibility of their lecture. Fluent and clear lecture delivery seems to be inextricably interwoven with perceived teaching quality when lecturers have to change from L1 to English (Ackerley, Guarda, and Helm 2017; Bradford 2018). For instance, EMI lecturers self-report speaking more concisely, with less elaboration and improvisation, making a poorer use of nuances and of strategies like humour or anecdotes (Dimova, Hultgren, and Jensen 2015), thus resorting to a monologic rather than interactive teaching style (Cots 2013). Specifically, when lecturers in L1 and EMI are compared, EMI lecturers are seen to be slower and more succinct, (Aguilar-Pérez and Arnó-Macià 2020; Thøgersen and Airey 2011), to use more repetitions (Arkin and Osam 2015) and fewer signposts (Dafouz and Núñez 2010) in EMI than in their L1 lectures.

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A pertinent framework to explore lecturers' performance in EMI and L1 is the study of metadiscourse, understood as 'the writer's explicit commentary on her own ongoing discourse' (Ädel 2006, 20) and fundamental to conveying content in an orderly and explicit way by signalling lecture phases (Young 1994) and reaching out to students. In this way, a comparison of the use of metadiscourse by the same lecturer teaching the same course in L1 and in English is expected to shed light on the impact of changing language on metadiscourse and to help us gauge the relevance of metadiscourse in EMI teacher training.

## Background

Metadiscourse as the ability of speakers-writers to use language to refer to themselves, their interlocutors and the ongoing discourse has been studied and analysed from different standpoints over decades. The dearth of research on metadiscourse has produced many definitions and taxonomies, employed to mostly examine metadiscourse in written texts and academic genres. Pioneer studies on metadiscourse revolved around the distinction between propositional discourse and metadiscourse (Crismore 1984; Crismore, Markkanen, and Steffensen 1993; Vande Kopple 1985), whereby metadiscourse was envisaged as the discourse comprising both textual and interpersonal categories. Vande Kopple, for example, stated that with metadiscourse 'we do not add propositional material but help our readers organize, classify, interpret, evaluate, and react to such material' (1985, 83). These former conceptions view metadiscourse as performing both textual and interpersonal functions encompassing evidentiality, stance and intertextuality. It is worth noting how metadiscourse was also found to be a resource to make textbooks more reader-friendly, if properly interspersed within propositional content (Crismore 1984, 280), or to help students improve their writing (Ho and Li 2018). With the aim of highlighting its inherently interpersonal nature, Hyland (2005) proposed a revised model of metadiscourse adhered to by many researchers and consisting of two categories: the interactional (the overt communicator's interventions to comment on the material) and the interactive (the communicator's signals of text arrangement while anticipating audience's knowledge). In contrast with this understanding of metadiscourse, a narrow school later emerged that envisaged metadiscourse as explicitly self-reflexive features performing textual organisation functions with regard to personal pronoun use. From the same school, Ädel compared metadiscourse in written and spoken genres, putting forward a classification of spoken metadiscourse for lectures (Ädel 2010). Yet, as noted by Hyland (2017), by recognising writer-oriented *and* reader-oriented features that address writer/speaker presence and interlocutor guidance, such as references to the imagined reader of the text, Ädel's (2010) conceptualisation draws away from the merely metatextual conception of metadiscourse. In this study, we draw upon Ädel's taxonomy (2010) for a comparison of metadiscourse in lectures, at the intersection between narrow and broad interpretations.

Whilst the vast majority of studies have centred upon monologic written text, in particular on how metadiscourse varies according to language, academic register, written or spoken mode and communicator's expertise (Hyland 2017), more has to be researched on the spoken mode (Zare and Tavakoli 2016). It seems clear that metadiscourse is an effective way to analyse how speakers/writers engage with the subject matter and their audience, and it is along these lines that metadiscourse in L1 and EMI lectures emerges as an important discourse strategy (Sánchez-García 2019) for lecturers to scaffold their subject matter, enhancing comprehension and clarity with content organising cues, while catering for their audience.

Research on the role of metadiscourse in facilitating lecture comprehension seems to demonstrate that textual metadiscourse, rather than references to the audience, is noticeably important in lectures, regardless of the language of instruction (Dafouz and Núñez 2010), as lecturers seem to use metadiscourse to explicitly frame and organise the discourse (see Molino 2018 for EMI lecturers), establish relationships between ideas in the unfolding arguments and set up classroom tasks (Ädel 2010; Lee and Subtirelo 2015) and make a considerable use of

personal metadiscourse tokens (Broggini and Murphy 2017). When studied according to the reading, conversational and rhetorical teaching styles, metadiscourse is seen to engage students in important ways (Bernad-Mechó and Fortanet-Gómez 2019). In this vein, it could be said that a core feature of lectures is the frequent use of textual metadiscourse (Molino 2018), while a high use of interactive metadiscourse seems to be related to dialogic academic genres (Zare and Tavakoli 2016). Among the general benefits of using metadiscourse in both L1 and L2 classes are that metadiscourse arouses class interest and increases note-taking activity (Benson 1989), while helping listeners predict the discourse direction. Though a few studies have found no significant influence of the use of textual metadiscourse uttered by lecturers on the number of information units noted in students' recall protocols (Dunkel and Davies 1994), most studies suggest that the positive influence of metadiscourse on lecture comprehension is linked to a myriad of factors. For example, macro-organising lexical phrases create a greater impact on lecture comprehension than micro (monosyllabic) markers, the latter not helping non-native students' retention of the lecture content because they 'do not add enough content to make the subsequent information more salient or meaningful' (Chaudron and Richards 1986, 123). Also, students' previous familiarity with lexical metadiscursive phrases reduces students' cognitive load by freeing processing space for other unfamiliar terms (DeCarrico and Nattinger 1988). Likewise, Aguilar and Arnó (2002) found that non-native students' proficiency also interacted because less proficient students were helped by the use of both textual and interpersonal metadiscourse, while for more proficient students metadiscourse was more superfluous. From the speaker strand, metadiscourse can also help EFL students improve their ability in a controlled speaking test (Ahour and Entezari Maleki 2014) and foreign language speakers like ITAs (International Teacher Assistants) have traditionally been encouraged to intersperse their speech with textual metadiscourse. The students' perception of lecturers who explicitly signal the overall plan of their lecture appears to be positive, with students rating these explicit lecturers high and welcoming their willingness to be clear and audience-oriented (Aguilar-Pérez and Arnó-Macià 2020; Thompson 2003). All in all, research suggests that metadiscourse facilitates listening comprehension by making the message more explicit and predictable.

In light of this, it seems reasonable to claim that EMI students can benefit from metadiscourse when EMI lecturers make efficient use of it. EMI lecturers reportedly make a scarcer, sometimes poorer use of metadiscourse when shifting from L1 to EMI (Aguilar-Pérez and Arnó-Macià 2020; Dafouz and Núñez 2010), and a higher use of textual metadiscourse than interpersonal metadiscourse (Ådel 2010) in EMI lectures. Molino (2018) examined the use of metadiscourse by Italian lecturers teaching Physics in EMI and found that EMI lecturers made an extensive use of personal discourse organisers, outnumbering lecturer interaction with audience. Endorsing Ådel, Molino claims that metadiscourse may be affected by other variables apart from genre. Among the few studies comparing L1 and EMI lectures, studies have also found a greater use of repetitions (Arkin and Osam 2015; Costa and Mariotti 2017; Sánchez-García 2019) and a slower speech rate (Thøgersen and Airey 2011) in EMI lectures than in L1 lectures. Given that metadiscourse use is believed to hinge upon language, register, mode and expertise (Hyland 2017), and assuming the overall beneficial role of metadiscourse in lecture comprehension, this study seeks to probe the use of metadiscourse in L1 and EMI by the same lecturer in order to derive some lessons that could lead to better lecturing performance if EMI lecturers are properly trained. Thus, we seek to examine if and how transitioning from one language to another impacts the use of metadiscourse and with this aim in mind, a two-way comparison was made, first, between the same lecture in two different languages and, second, between two different lectures by the same lecturer teaching the same subject. Thus, our research questions are as follows:

RQ1. Which metadiscursive items does the same lecturer employ when teaching in L1 and in EMI?

RQ2. What are the differences in metadiscourse, if any, and how can they be accounted for?

## Method: materials, context and participants

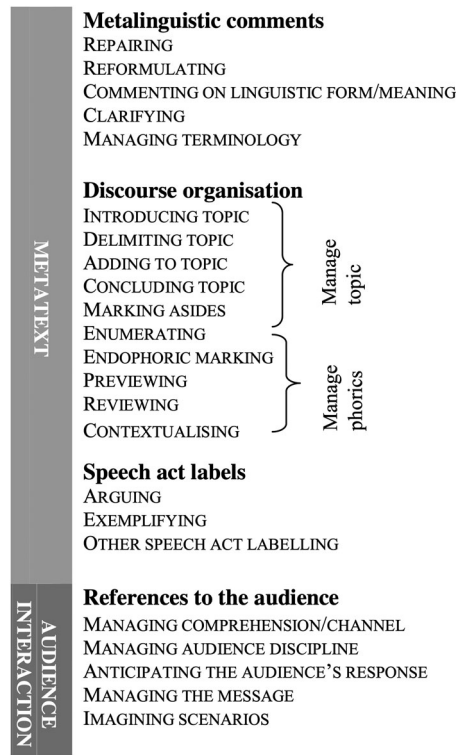
As outlined above, this is an exploratory study that seeks to examine the quantity and quality of metadiscursive items in two parallel L1 and EMI lectures. A mixed-methods approach was carried out to examine metadiscourse items and make comparisons across languages of instruction and lectures, in order to expand the depth of the quantitative analysis (Riazi and Candlin 2014).

The lecturer, aged 35, with a C1 level of English (according to the CEFR) and a predominantly monologic lecturing style, was teaching the same subject (*Advanced Electronics*) on a Master's degree in Industrial Technology Engineering, first in Catalan (L1) and then in English (EMI) on the same day. He was teaching this subject for the third year running in both languages. In both classes the classroom set up and the overall structure of the lecture were the same: the lecturer stood at the front of the class with students sitting in rows facing him and he moved between the blackboard, presentation slides and a notebook as he lectured. Albeit his traditional lecturing style, the lecturer regularly used rhetorical questions, punctuated with sporadic interactional sequences initiated either by his own or students' questions. He seemed at ease teaching in English in the EMI classes and did not switch to L1, whereas in his L1 classes there were a few instances where he mentioned technical terms in English. The differences in class size (71 in L1 vs 15 in EMI) reflect that EMI is perceived as a challenge by students.

Data were collected in the autumn semester of 2017 in the engineering department at a Spanish university (Arnó-Macià and Aguilar-Pérez 2021). The video recordings from four lectures were transcribed using standard transcription codes (see Appendix 1), resulting in a corpus of 27,694 words from over 4.5 hours of recordings. The lecturer used between 5600 and 7700 words per class and classes lasted between 64 and 77 minutes.

The data was then coded by marking items labelled metadiscursive following Ädel (2010), whose taxonomy is one of the few that deals with spoken metadiscourse. Ädel's taxonomy distinguishes two broad categories, *Metatext* and *Audience Interaction* (Figure 1). With *Metatext* the speaker guides the audience through the text, focusing on structure, discourse actions and the wording of the text itself, as in 'this will be discussed later' or 'to conclude' (Ädel 2006, 20). *Metatext* is composed of three subcategories, *Metalinguistic comments*, *Discourse organisation* and *Speech act labels*. The other category of metadiscourse allows the speaker to interact with the audience, somehow influencing them, hence the label *Audience interaction*, which comprises one subcategory, *References to the audience* (see Appendix 2 for examples taken from our data). Unlike Ädel, we analyse both personal ('as I mentioned above') and impersonal metadiscourse ('in the above-mentioned conditions'), because in monologic spoken interaction, such as lectures, the speakers' presence is often syntactically invisible for the sake of brevity but tacit ('another example' implicitly conveying 'I'm going to give you another example'). Moreover, (rare) non-standard items, repetitions, false starts and false comprehension checks were disregarded.

Both researchers coded all four lectures separately using Atlas.ti software. Excerpts marked as the same metadiscourse item were then filtered and revised, given the multifunctionality and fuzziness of metadiscourse (Hyland 2005; Ädel 2006). For example, excerpts coded *Adding to a topic* were re-read, checking that the metadiscourse function adhered to Ädel's model and, if necessary, recoded or discarded. This process was carried out for each of the 23 metadiscourse items by each researcher. This revision stage increased the reliability of the coding process by detecting inconsistencies and allowing a closer comparison of the L1 and English transcripts. Researchers then compared their coding with each other and the discourse function of the excerpts was discussed until agreement was reached and a code was either accepted or disregarded. After achieving inter-rater reliability, the data were normalised (codes per 1000 words) to allow comparisons.



**Figure 1.** Proposed taxonomy of metadiscourse (Ådel 2010, 83).

## Results

Given that from our examination of lecture content we saw that lectures differed in topic, but that they also appeared to differ in terms of complexity, we present the comparison of metadiscourse across languages, followed by the comparison across lectures by first giving the quantitative results and subsequently elaborating on them with qualitative findings, respectively.

### *Metadiscourse across languages*

Firstly, when we compared speech rate as words per minute across the languages of instruction (LOI) we found that EMI lectures were 28.55% slower than L1 lectures on average (Table 1). This result aligns with Thøgersen and Airey (2011), who found similar figures for parallel lectures by an experienced lecturer in Danish and English, although they used different measures: syllables per second (23.4% lower in English) and mean length of run (30.2% lower in English).

Turning to metadiscourse, once raw numbers of metadiscourse items had been standardised per 1000 words to make comparisons (see Table 2), little difference in the total amount of metadiscourse use was found across LOI: L1 ( $M = 50.3$ ) versus EMI ( $M = 50.4$ ). In other words, despite the lecturer's lower speech rate in the EMI lectures (resonating with previous research), he produced virtually the same number of metadiscourse items.

**Table 1.** Average speech rate in words per minute (wpm) across LOIs.

	L1	EMI	% Difference
Wpm	107.19	76.58	28.55

**Table 2.** Metadiscourse items per 1000 words across LOIs and lectures.

	L1	EMI	Difference-LOI	Lecture 1	Lecture 2	Difference-Lecture
Metadiscourse items	50.3	50.4	0.1	47.3	53.4	6.1

In order to examine the kind of metadiscourse the lecturer used, Table 3 shows individual metadiscourse items according to LOI. Firstly, comparing Ädel's two main categories of metadiscourse, *Metatext* (L1:  $M = 19.9$ , EMI:  $M = 20.4$ ) and *Audience interaction* (L1:  $M = 30.4$ , EMI:  $M = 30.0$ ), there is very little difference between LOIs. This finding contrasts with authors such as Dafouz and Núñez (2010) or Molino (2018), who found that EMI lecturers use less metadiscourse than in L1, with textual metadiscourse outweighing interpersonal items in EMI. Instead, we see the lecturer using a greater amount of three metatextual subcategories – *clarifying*, *endophoric marking* and *reviewing* – in L1 than in EMI, where he may feel more confident, but more markers for topic shift (*introducing/adding to a topic*), *asides* and *manage terminology* in EMI. Anticipating more difficulty in EMI, the teacher may be more careful to signpost his discourse and ensure correct uptake. All in all, the lecturer uses the same types of metadiscourse in similar ways, regardless of the LOI. These results would resonate with Sanchez-Garcia's study (2019), following Kellerman, of discourse strategies being transferred quite smoothly and naturally from L1 to EMI, provided the lecturer had already internalised a given strategic competency he already possessed and provided his second language proficiency was not a hurdle.

Interestingly, *Audience interaction* (L1:  $M = 30.4$ , EMI:  $M = 30.0$ ) outweighs *Metatextual* metadiscourse (L1:  $M = 19.9$ , EMI:  $M = 20.4$ ) in both LOI, aligning with Zare and Tavakoli's (2016) study on dialogic academic speech, and reflecting a lecturer who produces more metadiscourse to interact with his audience than to comment on the function and structure of the discourse. *Managing comprehension*

**Table 3.** Metadiscourse across LOIs (mean items per 1000 words) with differences greater than 0.5 marked with\*.

	L1	EMI
<i>Metalinguistic comments</i>		
Clarifying	*2.6	0.3
Commenting on linguistic form/meaning	0.2	0.0
Managing terminology	1.9	*2.5
Reformulating	0.0	0.0
Repairing	0.8	1.0
<b>Total</b>	<b>5.6</b>	<b>3.8</b>
<i>Discourse organisation</i>		
Adding to a topic	0.1	*0.6
Concluding topic	0.8	1.2
Contextualising	0.1	0.2
Delimiting topic	0.1	0.1
Endophoric marking	*4.9	2.4
Enumerating	1.5	1.1
Introducing a topic	1.7	*5.3
Marking asides	0.1	*1.1
Previewing	0.8	0.7
Reviewing	*2.7	2.2
<b>Total</b>	<b>12.9</b>	<b>14.9</b>
<i>Speech act labels</i>		
Exemplifying	0.8	1.1
Other speech act labelling	0.6	0.6
<b>Total</b>	<b>1.4</b>	<b>1.7</b>
<b>Metatextual total</b>		
	<b>19.9</b>	<b>20.4</b>
<i>References to the audience</i>		
Anticipating the audience's response	0.2	0.3
Imagining scenarios	0.3	0.7
Managing audience discipline	0.6	0.2
Managing comprehension channel	22.5	22.6
Managing the message	3.8	4.0
<b>Audience interaction total</b>	<b>30.4</b>	<b>30.0</b>
<b>Total</b>	<b>50.3</b>	<b>50.4</b>

*channel* (L1:  $M = 22.5$ , EMI:  $M = 22.6$ ), within *Audience interaction*, far outweighs any other kind of metadiscourse the lecturer uses (means ranging from 0 to 5.3). This is followed by *Managing the message* (L1:  $M = 3.8$ , EMI:  $M = 4.0$ ). The following excerpts illustrate how the lecturer engages with the students in this way. Within the same explanation in both languages, the lecturer manages comprehension several times, checking that students understand him and anticipating their responses.

### #Example 1 Lecture 1- L1 Catalan

7 és 8 menys 1 (.) d'acord? (2) podem dividir a dalt i baix per 8 (WB) lo mateix (.) vale? (3 WB) **anem a fer** aquesta divisió de sota (.) 1 menys un vuitè (.) vale? (WB)(xx) vuitens per això d'aquí (.3) vale? (.2) **oi que: us en recordeu** (4 WB) que això si la x és petit (.5 WB) (.) **oi que això us recordeu d'aquest, si?** (.) i un vuitè què? és petit o no és petit? és petit fet xx de convergents ja és u en aquesta sèrie, **no?** (...) **esteu d'acord no?** (.3) **esteu d'acord?** (.4) dividit per dos elevat a n en binari, què és?

7 is 8 minus 1(.) ok? (2) we can divide top and bottom by 8 (WB) the same (.) ok? (3WB) **let's do** the division below (.)ok? **MANAGING THE MESSAGE** (WB) (xx) eighths because of this here (3) ok? (.2) **do you: remember** (4 WB) that if x is small (5. WB) **MANAGING COMPREHENSION CHANNEL** (.) **do you remember this one? you do, right? ANTICIPATING THE AUDIENCE'S RESPONSE** and one eighth, what is it? Is it small or not? It's small (xx) converging it's already one in this series, **isn't it? MANAGING COMPREHENSION CHANNEL you agree, right?** (.3) **do you agree?**(.4) **MANAGING COMPREHENSION CHANNEL** divided by 2 to the n in binary (.) what is it?

### #Example 2 Lecture 1- EMI

if we implement this using our microcontroller it will be performing a loop to subtract 7 and count how many times it is able to do that (.) 7 is 8 minus 1 (.) **isn't it? let's divide** by 8 numerator and denominator and here 1 minus 1-8 **INTRODUCING TOPIC**

STUDENT: xx

LECTURER: **No problem** (.) **MANAGING COMPREHENSION CHANNEL** write down any problem so far no one eighth is small ok(.) and **I'm pretty sure guys do you remember** this series function if x is small **MANAGING THE MESSAGE ah you remember that right?** Ok **ANTICIPATING THE AUDIENCE'S RESPONSE** (.) one eighth here is our xx one eighth squared one eighth cubed so on (.) **ok? yes? no problem?** what is it? **MANAGING COMPREHENSION CHANNEL**

As for *Metatextual* metadiscourse, although the lecturer makes far less use of this type compared to *Audience interaction*, the most frequent items found in this category, as seen in Table 3, were *endophoric marking* (L1:  $M = 4.9$ , EMI:  $M = 2.4$ ), *introducing a topic* (L1:  $M = 1.7$ , EMI:  $M = 5.3$ ), *reviewing* (L1:  $M = 2.7$ , EMI:  $M = 2.2$ ), *managing terminology* (L1:  $M = 1.9$ , EMI:  $M = 2.5$ ), *clarifying* (L1:  $M = 2.6$ , EMI:  $M = 0.3$ ) and *enumerating* (L1:  $M = 1.5$ , EMI:  $M = 1.1$ ) with the remaining items used residually ( $M = 0-1.0$ ).

If we compare the quality of metadiscourse across languages, we find that the lecturer's stance is more personal and more nuanced in L1, the language he is likely to feel more fluent in (Aguilar-Pérez and Arnó-Macià 2020). The most remarkable difference is that the lecturer tends to produce less elaborate and impersonal metadiscursive items in EMI, as can be seen in the following example (#3) where he introduces topic with the repeated micro-marker 'so' in EMI whereas he uses longer and sometimes syntactically richer expressions in L1:

### #Example 3 Introducing topic

L1: **anem a analitzar en detall aquest bloc de codi...**(.) **anem a veure què és el que fa** (.) **anem a fer-ho amb calma** (.) **anem a fer-ho a poc a poc (let's analyse in detail this code block...)(.) let's see what it's doing...)(.) let's do it calmly** (.) **let's do it slowly**) [our translation]

EMI: **so** how it is: stored: (.) I'm referring to the INCF instruction



**#Example 4 Managing terminology**

L1: aquest nom d'instrucció es diu Mnemònic (**this type of instruction is called Mnemonic**)

EML: then we end up with **what we call the assembler code or machine code**

**#Example 5 Managing comprehension channel**

L1: vale? s'entén? (.2) s'entén? (.) pregunteu eh, si no ho enteneu? (**ok? understand? understand? Just ask, ok, if you don't understand**)

EML: **any questions regarding this? is it clear?**

**Metadiscourse across lectures**

As mentioned above, we realised that the lectures appeared to differ in terms of complexity. While in the first one, the lecturer presented several new concepts in quite a condensed way on the *micro-controller instruction set*, describing the names and functionalities of several instructions and how they were related to each other, in the second one he undertook an explanation of a single instruction, *the status register*. When we consulted the lecturer, he said that students tended to struggle more in understanding the new content in the first lecture because:

crec que els hi costa més d'entendre la "Lecture 1". La "Lecture 2" és més senzilla, més concreta i manegable. La "Lecture 1" hi té molts conceptes nous, relacionats amb pràcticament totes les sessions prèvies a més de que hi han moltes instruccions (que esperem que ells mirin ja que a classe només en veiem unes quantes)

*I think Lecture 1 is harder for them to understand. Lecture 2 is simpler, more specific and manageable. Lecture 1 contains many new concepts, related to almost all the previous lectures, apart from many instructions, (some of which we expect students to look at out of class, given that in class we only cover some of them).* [our translation].

Our interpretation of lecture complexity was thus validated by the lecturer, with Lecture 1 being considered the more cognitively complex one, requiring a concentration of effort by both students and the lecturer, given the challenge of explaining new concepts built on previous knowledge and at the same time coping with a large amount of new instructions.

Comparing speech rate across lectures (Table 4), we found that it was practically the same for both lectures (0.05% difference), seemingly unaffected by the difference in cognitive complexity.

In terms of metadiscourse, Table 5 reveals that, first, the lecturer uses more metadiscourse overall ( $M = 53.4$ ) in Lecture 2 than in Lecture 1 ( $M = 47.3$ ), second, that this is due to more *Audience interaction* in Lecture 2 ( $M = 33.7$ ) compared to Lecture 1 ( $M = 26.7$ ) and third, that this *Audience interaction* outweighs *Metatextual* metadiscourse (Lecture 1:  $M = 20.6$ , Lecture 2:  $M = 19.7$ ) in both lectures.

We thus find more *Audience interaction* in Lecture 2, the simpler lecture, requiring a lower cognitive effort, as the lecturer was likely freer to cater for the audience and anticipate their problems, explicitly referring to them by *managing the comprehension channel* ( $M = 25.0$ ) and *managing the message* ( $M = 8.0$ ) more frequently. We can see in example #6 that the lecturer begins by checking students have followed his explanation with 'what faces do I see?' and then he consistently interacts with students using a sequence of these metadiscursive devices.

**Table 4.** Average speech rate in words per minute (wpm) across lectures.

	Lecture 1	Lecture 2	% Difference
Wpm	91.91	91.86	0.05

**Table 5.** Metadiscourse across lectures (mean items per 1000 words) with differences greater than 0.5 marked with \*.

	Lecture 1	Lecture 2
<i>Metalinguistic comments</i>		
Clarifying	*2.1	0.9
Commenting on linguistic form/meaning	0.1	0.1
Managing terminology	*2.6	1.8
Reformulating	0.0	0.0
Repairing	1.1	0.8
<b>Total</b>	<b>5.8</b>	<b>3.6</b>
<i>Discourse organisation</i>		
Adding to a topic	0.2	0.4
Concluding topic	*1.3	0.7
Contextualising	0.1	0.2
Delimiting topic	0.2	0.1
Endophoric marking	2.5	*4.9
Enumerating	0.9	*1.7
Introducing a topic	3.3	3.7
Marking asides	0.7	0.5
Previewing	*1.2	0.3
Reviewing	*3.0	1.9
<b>Total</b>	<b>13.4</b>	<b>14.4</b>
<i>Speech act labels</i>		
Exemplifying	0.8	1.0
Other speech act labelling	0.6	0.7
<b>Total</b>	<b>1.4</b>	<b>1.7</b>
<b>Metatextual total</b>	<b>20.6</b>	<b>19.7</b>
<i>References to the audience</i>		
Anticipating the audience's response	0.3	0.1
Imagining scenarios	*0.9	0.2
Managing audience discipline	0.5	0.4
Managing comprehension channel	20.1	*25.0
Managing the message	4.9	*8.0
<b>Audience interaction total</b>	<b>26.7</b>	<b>33.7</b>
<b>Total</b>	<b>47.3</b>	<b>53.4</b>

### #Example 6 Lecture 2-EMI: Managing the message and Managing comprehension channel

LECTURER: (2.) what faces do I see?(.) yes **MANAGING COMPREHENSION CHANNEL**

STUDENT: I have a question(.) (student asks question)

LECTURER: one negative? yes

STUDENT: it is only in the case ...?

LECTURER: correct correct (.) exactly that's that's the key point actually that's a key point (.) **MANAGING THE MESSAGE**

STUDENT: xx587666> ""

LECTURER: so it depends (.) (**lecturer continues explanation**) okay please guys verify that (.) **MANAGING THE MESSAGE** do you remember how to do that right? **ANTICIPATING AUDIENCE RESPONSE** to use complement (.) which is basically once complement plus one is telling us which number do we have okay? (.) if you have some questions about it just ask them (.) **MANAGING COMPREHENSION CHANNEL (lecturer continues explanation)** so: the what's what's the key point here? (2.) **MANAGING THE MESSAGE** actually I have some example for (2) regarding these two important flags (3.) (**lecturer continues with the example**) it's gonna be [number minus fifty-four WB] okay it's negative (.) check that and please (.) check that these numbers I am writing here in decimal correspond to their xxx complement expression there in binary(.) **MANAGING THE MESSAGE (lecturer and student interaction)** ah:(.) did I missed up something? **MANAGING COMPREHENSION CHANNEL**

### #Example 7 Lecture 1-EMI: Clarifying and Managing terminology

LECTURER: INCF actually INCF means increment a file register (.) **MANAGING TERMINOLOGY** remember that the file register is updated memory position ok (**lecturer continues**) (.) we leave our result in

our accumulator register for our microcontroller (.) it is called w register the working register **MANAGING TERMINOLOGY (lecture continues)** and this is called this refer this way of ordering first the msb or lsb bytes (.) it is called endianness (.) **MANAGING TERMINOLOGY** and this is: called big endian memory organisation (.) **MANAGING TERMINOLOGY** and this is called little endian organisation ok (.) **MANAGING TERMINOLOGY (lecture continues)** Er so you mean the whole 16 bits? **CLARIFYING**

STUDENT: are the same but (...)

LECTURER: No that's not possible because the upcode is specific for every each of the instructions **(lecture continues)**

STUDENT: but we: need to know how it works with all the instructions or ...

LECTURER: No no no I'm not tell... no no no I'm not telling that **CLARIFYING**

The lecturer also goes back and forth, *previewing*, ( $M = 1.2$ ), and *reviewing*, ( $M = 3.0$ ) more often in Lecture 1, anticipating or revisiting previous concepts to build on new knowledge. These results hint at a relationship between metadiscourse, task complexity and the speaker's processing effort to cover a lot of new content in a condensed way.

When metadiscourse across lectures is compared qualitatively, no differences are found as the lecturer elaborates more in L1 for certain metadiscourse items such as *managing the message*. In other words, both lectures display more elaborate metadiscourse when the lecturer is in his L1, suggesting that language, rather than complexity, determines degree of elaboration in metadiscourse.

Summing up, the study yielded three distinct findings, the first being that the speech rate was 28% slower in EMI than in L1, probably as a consequence of the language shift. Second, no clear discrepancies in the level of metadiscourse use due to language shift were found, with the exception of qualitative differences in some items showing more elaboration in L1. However, differences were observed due to the complexity of the lecture, with more metadiscourse and more audience interaction in the less complex lecture. Thirdly, the lecturer in this study, proficient and very well rated by students, continuously interacted with the audience, employing a greater use of *Audience interaction* compared to *Metatextual* metadiscourse in both languages.

These results reflect the lecturer's all-encompassing aim to pedagogically put forward the content in an organised and clear way showing some empathetic concern for his students' uptake. Unlike other studies, where lecturers make a lower use of metadiscourse when shifting from L1 to EMI, in our study the lecturer's ability to comment on his ongoing discourse is not affected. In light of this, it could be claimed that, as an experienced and proficient lecturer, he is transferring his already well-developed metadiscourse and teaching skills from L1 (Sánchez-García 2019), the shift of language apparently not exerting much negative impact. Nevertheless, if metadiscourse is compared along the lecture axis, more metadiscourse is found in Lecture 2. When undertaking the more challenging task of setting forth many and new concepts (Lecture 1), the two metatextual metadiscursive items that abound are *clarifying* and *managing terminology*, whereas when the task is less cognitively demanding (Lecture 2), he uses metatextual metadiscourse that allows him to *endophorically* mark content and *enumerate* as well as more interactive metadiscourse to *manage comprehension* and *the message*.

## Discussion and pedagogical implications

Although this is an exploratory study whose results will have to be confirmed with more data, the information obtained allows us to answer the first question, *Which metadiscursive items does the same lecturer employ when teaching in L1 and in EMI?* Results point to the fact that the lecturer makes quite a balanced use of both metatextual and interactive metadiscourse in both his L1 and English (*Metatextual* L1:  $M = 19.9$ , EMI:  $M = 20.4$ ; *Audience interaction* L1:  $M = 30.4$ , EMI:  $M = 30.0$ ). Given that similar studies comparing similarly proficient and highly-rated teachers lecturing the same course in L1 and EMI are lacking, it remains to be seen with larger corpora if this balanced use – with slightly more emphasis placed on audience than on text – is what leads students to

regard a lecturer as ‘a good teacher’ (Aguilar-Pérez and Arnó-Macià 2020), regardless of the LOI. The prominence of audience-oriented metadiscourse in the guise of frequent use of *managing the message* and *managing comprehension* (combined with his explicit discourse-signalling cues like *clarifying*, *managing terminology*, *endophorics*, *enumerating* and *topic shift*) provides all his lectures with a dialogic dimension that projects him as a clear and approachable teacher (Aguilar-Pérez and Arnó-Macià 2020) despite the lectures being teacher-led. The rather balanced use of the textual-interactive metadiscourse tandem could be interpreted alongside the lecturer’s proficiency, attitude and effective teaching style (Tatzl 2011), and aligns with prior studies proving the beneficial role of metadiscourse in improving student’s performance in essays and presentations (Ho and Li 2018; Hyland 2005) as well as in lecturers’ perceived performance. We should acknowledge that one limitation to our study is the disparity in class size (L1 = 71, EMI = 15), an indication of the reality in many European universities where students can choose to take a subject in their L1 or in English, but we do not believe this to be a key player in metadiscourse use. Other variables such as language, discipline, expertise and methodological approach, as we argue below, may play a more central role.

As to the second question regarding *what differences in metadiscourse exist and how they can be accounted for*, quantitative data suggest that lecture type, namely, the complexity of the content to be conveyed, is more determining in the use of metadiscourse than differences in language. We have seen that, *ceteris paribus*, i.e. assuming equal conditions of content and teaching behavior, the lecturer uses metadiscourse quite similarly across languages. Shifting language does not put him out of his comfort zone, as he uses the same effective metadiscourse he already acquired and internalized when lecturing in L1 (Sánchez-García 2019). However, when the same teacher, *ceteris paribus*, has to teach complex content that he anticipates his students may stumble over, his use of *interactive* metadiscourse decreases. The lecturer is seen to adjust his metadiscourse to meet the situational demands and, driven by his cognitive effort, he is directed towards explaining the propositional content, which in turn renders him slightly less interactive than in the simpler lecture. His willingness to drive home the content to students clearly fuels his production of textual metadiscourse, leaving his speech slightly less interactive, yet still acknowledging and reaching out to students by means of his habitual references to the audience. In view of these findings, the task complexity factor emerges as a likely intervening factor in the use of metadiscourse, apart from factors already identified in the literature – register, mode or communicator’s expertise (Hyland 2017).

Research on metadiscourse in EMI (Dafouz and Núñez 2010; Molino 2018) has taken a stand for the explicit integration of metadiscourse into teacher training, as a pedagogic strategy with a twofold effect: enhanced clarity to scaffold content and improvement of the lecturing quality by promoting audience-orientedness. Bearing in mind the results in this study, we suggest that the need to cater for metadiscourse in EMI teacher training should be tailor-made for lecturers who either do not use much signposting in L1 (probably unaware of their lack of explicitness and audience orientation) or for those lecturers who make a low and poor use of metadiscourse (Dafouz and Núñez 2010), maybe reflecting that EMI itself is a cognitively challenging task for them. In the former case, the training could focus on competences that can directly be transferred from L1 to English; for the latter, training could be steered toward a more linguistic approach, to provide lecturers with familiarity with the rich array of expressions in English to comment on their ongoing discourse, while entertaining a more dialogic relationship with students. While explicit teaching of metadiscourse for lecturers who already use metadiscourse in L1 would not seem so necessary, customised training based on a needs analysis and the complexity of lecture content would appear a wiser move allowing better targeted training to improve teaching quality, regardless of the vehicular language. And if the teacher training focus was not EMI but rather ICLHE (where teachers explicitly teach language as well as content) drawing attention to language-related aspects like metadiscourse would be even more relevant.

Finally, the emphasis on EMI teacher training to improve teaching quality should not neglect the recipient end, students. Students’ lack of familiarity with the rich and varied metadiscourse items uttered by effective EMI teachers could be detrimental to their lecture comprehension and note-taking. Hence, teaching students to unpack metadiscursive devices can boost student performance

in EMI (Ahour and Entezari Maleki 2014). These two courses of action, helping EMI teachers improve their teaching behaviour, and helping students recognise metadiscourse in order to follow lectures more effectively, may prove to be two important stepping-stones leading to quality not only in EMI but in lecturing in general.

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## Appendices

### Appendix 1. Transcription conventions

The following conventions were included in transcriptions

Code	Meaning
(.)	Natural pause between units of speech, (2.) - 2 second pause. (3.) - 3 second pause etc.
:	Lengthening of word/syllable
WB	writes on board
...	Interrupted utterance
?	Rising intonation, as in a question
(xx)	Indecipherable speech

**Appendix 2. Excerpts of the lecturer's metadiscourse from the EMI and L1 (Catalan) class**

Metadiscourse Groups	EMI	L1 (Catalan)
<i>Metalinguistic comments</i>		
Clarifying	Let's clarify this a little bit	... O sigui això en principi és software (.) no és lliure però si que te'l donen de forma gratuïta <i>What I mean is it's basically software (.) it's not open but they give it to you for free</i>
Commenting on linguistic form/meaning	<i>No instances found</i>	<i>s'emmagatzema o es mapeja com vulgueu you store or map it or whatever</i>
Managing terminology	er: literal (.) this this means this example means move a literal value	Codi màquina de vegades es diu també codi objecte <i>Machine code which sometimes is called object code as well</i>
Reformulating	<i>No instances found</i>	<i>No instances found</i>
Repairing	Sorry guys this should be a zero	té tres operants tres arguments però <i>It's got three arguments, sorry</i>
<i>Discourse organisation</i>		
Adding to a topic	so: what more do we have here?	Continuem amb aquella rotació <i>We continue with that rotation</i>
Concluding topic	and we will finish this block	ara que hem analitzat pas a pas totes aquestes instruccions <i>now that we've analysed step by step all these instructions</i>
Contextualising	let me check the time (.) okay plenty of time	Quina hora tenim? <i>What time is it?</i>
Delimiting topic	I'm gonna leave this portion for you if you wanna check and practise this (.) and let's focus on the conditional	nosaltres a l'assignatura el que farem és programar en llenguatge C  <i>in our course what we'll do is programming in C language</i>
Endophoric marking	Let's take a peek at these slides	tota aquesta informació la teniu al <i>datasheet</i> del dispositiu <i>All this information you've got it in the datasheet</i>
Enumerating	Second argument is ...	primer de tot ja veieu que ...
Introducing a topic	ok let's locate the INCF / let's (2.) take a peek on the: Let's start topic number 4	al tema quatre el que parlarem serà  <i>in topic four what we'll be talking about is</i>
Marking asides	by the way I don't know if I already showed you this ...	aquest és per cert l'entorn xx que empareu al laboratori vale? <i>This is by the way the setting xx you'll use in the lab ok?</i>
Previewing	We'll be programming our microcontroller	el del carry parlarem el proper dia <i>the one for the carry we'll talk about next day</i>
Reviewing	These three arguments we've already talked about	perquè de l'assembler ja hem dit que és propi de cada microcontrolador <i>because as for the assembler, we've said it's every controller's</i>
Exemplifying	Let's take an example	<i>Speech act labels</i> de seguida fem un exemple per aclarar això <i>we'll see an exemple to clarify this</i>
Other speech act	labelling let's let's continue commenting	us recomano que feu una ullada almenys que acabeu d'entendre <i>I recommend you to take a look at this, at least to fully understand</i>
Anticipating the audience's response	as probably you might expect	<i>References to the audience</i> amb la suma suposo que no teniu problema  <i>with the addition where I suppose you don't have any problem</i>

(Continued)

Continued.

Metadiscourse Groups	EMI	L1 (Catalan)
Imagining scenarios	you might imagine how difficult it was to figure out	imaginem que la nostra ALU està fent una suma <i>let's imagine our ALU is making an addition</i> Molt bona pregunta
Managing audience discipline	Yes good observation by the way	<i>A very good question</i> Alguna aclaració respecte això que acabem d'explicar?
Managing comprehension channel	It is clear the way we are generating this code?	<i>Any query regarding what we've just explained?</i> recordeu que els rangs d'aritmètica sense signe van ... <i>remember that arithmetic ranges without any sign go ...</i>
Managing the message	remember this is just one single bit	