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The effects of English-medium instruction on the use of textual and interpersonal pragmatic markers

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This study examines a semi and a full English-medium instruction (EMI) undergraduate program offered at a Catalan university in order to measure its effect on the students' oral output. Specifically, it tackles the acquisition of pragmatic markers (PMs) by measuring four variables, the overall frequency of use, the variety of types, the use of textual PMs, and the use of interpersonal PMs. Oral data were collected via a monologue and an interaction task. The study is cross-sectional with 39 full-EMI and 33 semi-EMI participants in 2nd and 3rd year of study plus 10 native speakers. PM use was chosen for analysis due to the important role they play in communicative competence. Results show a significant increase in the overall frequency and variety of types of PMs used from year 2 to year 3. The full-EMI group used PMs at a significantly higher frequency and wider variety when compared to the semi-EMI group, neither group reached baseline levels for use of interpersonal PMs, and both groups displayed a higher use of textual PMs compared to the NSs.

Keywords: pragmatic markers, second language acquisition, English-medium instruction, immersion, communicative competence

1. Introduction

Actually, like, so, I think, well, you know, you see, it can be difficult to provide a clear definition of these linguistic items, in fact, linguists debate on their roles, classifications and how to approach their study. For example, the discourse analysis approach highlights coherence and the communicative effect of pragmatic markers (Redeker 1990; Shiffrin 1987), while the pragmatic approach takes a syntactic and sematic analysis (Fraser 1999; Schourup 2011) and finally, the approach stemming

from relevance theory underscores the importance of cognition in the study of PMs (Rouchota 1996). In the present study, the term pragmatic marker is used (PM) and the approach is a multifunctional one following Aijmer (2013) and Fischer (2014). PMs are thought to be closely related to a speaker's oral fluency (Barón and Celaya 2010; Trenchs-Parera 2009), and overall communicative competence (Alcón and Safont Jordà 2008; Halliday and Hasan 1976). Furthermore, PMs are known to play an important role both in first and second language interaction, as contested by their constant use during interaction by native (NS) and non-native speakers (NNS) alike. During interaction PMs perform a variety of different discourse management functions (Yates 2011) which we will discuss in detail later on in this paper. Research thus far asserts that, while languages rely on PMs to organize discourse, the frequency, distribution, and overlap of PM meanings from one language to another can vary greatly (LoCastro 2001). This variation and difficulty pinpointing the core meaning and usage of PMs are what present challenges for learners' pragmatic, and, partially, communicative development. Indeed, even after long periods of contact with the target language, learners are found to plateau when it comes to pragmatic learning (Romero-Trillo 2002).

Shifting now to the context of the present study, to begin with, Europe has been a model of the exchange and integration of languages over many centuries and while English has been a world language for quite some time, its popularity and growth as a lingua franca in recent years is remarkable (Costa and Coleman 2013). English as a lingua franca (ELF) stems from both historical and political motives but is especially attributed to the globalization of the world's economy (Crystal 2003). The role of English as the leading language in higher education means it is frequently used as a medium for instruction, by, and for non-native English speakers in many European countries where English is not the official language. This practice is known as English-medium instruction (EMI) (Hellekjær and Hellekjær 2015) and its continual increase in implementation and practice across European universities is one of the motivating factors for this study. Thus, the present study's aims are two; the first is to report on the patterns of use of PMs by students who study via EMI, as described by the overall frequency and variety of types of PMs used, then, more specifically, by the frequency of use of textual, and interpersonal PMs separately. The second aim is to compare the use of PMs between a semi and full-EMI program, and second to third-year students in order to detect if the different amounts of input provided by each program have an effect on the use of PMs.

2. Pragmatic marker functions and role in communicative competence

The current study follows a functional pragmatic perspective (Aijmer 2013; Andersen 2001), which identifies PMs according to the main function the marker carries out in its context. Two main types of markers are investigated, interpersonal and textual. According to Andersen (2001), interpersonal markers are used to express social functions and convey both the speaker's relation to a proposition and their conception of the hearer's relation to it. In contrast, textual markers are used to express relationships between units of discourse and involve how the speaker perceives the structural relationship between propositions.

Looking firstly at the function of textual markers research has identified a number of sub-functions identified within this broad function (see Table 1). Firstly, causal markers, which mark a causal relationship between two units of discourse, for example, '*because x, y*' or '*x so/because y*' (Hyland 2005; Müller 2005). Secondly, continuation markers, are thought to connect units of talk (Fraser 1999; Shiffrin 1987) and include items such as *and, moreover, in addition, or so*. Thirdly, contrast markers such as *although, but, however, and whereas* mark the contrast between the main arguments of each utterance (Fraser 1999). Fourthly, elaboration markers such as *for example, such as, like, I mean, and well* function to reformulate, to introduce examples or are used to mark the elaboration of discourse (Clark and Fox Tree 2002; Cuenca 2008). Next, opening or closing of discourse markers are items such as *alright, now, ok, so, and well* (Fraser 1999; Hyland 2005; Cuenca 2008). Then, topic shift or digression markers, which are used to shift topics and include items such as *anyway, or, whatever, so, regarding, and then* (Fung and Carter 2007; Buyse 2012; González 2005; Pons Bordería and Estellés Arguedas 2009). Following this, items such as *then, well, next, firstly, and after* which are used to present a sequence of events or mark temporal value (González 2005) and are known as sequence markers. Finally, summary markers are those markers which mark the introduction to a concluding or summarizing segment of discourse, for example, *so, yeah, well, and to conclude* (Müller 2005; Buyse 2012).

Now shifting to interpersonal markers, again previous research has identified sub-functions within this broad function (see Table 1). Firstly, markers such as *yeah, ok, sure, right, and I see* which show receipt of information or signal understanding and listenership (Brinton 1996; Shively 2015). Secondly, markers to stimulate and maintain interaction are employed by the speaker in an effort to continue the flow of discourse for example, *yeah, right, really, and great*. Thirdly, alignment markers are used to mark alignment or create a closeness (or distance) between speakers and could include items such as *exactly, I agree, totally, yeah, that's right, and, yes* (Maschler 1994). Fourthly, markers such as *you know, and I mean* project and signal shared knowledge and common ground (González 2005). Next, there are markers

which signal hesitation or repair such as *I mean* and *well*. Following this, there are attitude markers such as *I think*, *definitely*, *basically*, and *absolutely* which express the speakers' attitudes towards what is being uttered (Brinton 1996). Finally, politeness markers serve to mitigate or downgrade and include items such as *I mean*, *well*, *sort of*, *kind of*, and *I think* (Chodorowska 1997).

Table 1. Functions of textual and interpersonal markers

Functions of textual markers	Functions of interpersonal markers
<i>To show causal relationships to show consequence or effect, to mark the link between two clauses</i>	<i>To mark receipt of information, to show listenership and support to the speaker</i>
<i>To mark a contrast between two clauses or between two parts of the discourse</i>	<i>To stimulate or maintain interaction, to assess listener comprehension and engagement</i>
<i>To show a continuation of discourse on the same topic, to add additional information</i>	<i>To align or disalign oneself with the speaker by expressing agreement or disagreement</i>
<i>To elaborate, reformulate or exemplify</i>	<i>To mark joint construction of knowledge, mark common ground</i>
<i>To signal opening or closing of discourse or mark the end or beginning of a turn</i>	<i>To signal hesitation, thinking or repair</i>
<i>To show the temporal sequence between clauses or between two parts of discourse</i>	<i>To mark attitudes, stance or emotional reactions</i>
<i>To signal shifts or transitions of discourse topics, to mark digression from one topic to another or return to a previous topic</i>	<i>To intensify, boost, downgrade, hedge or serve as politeness markers</i>
<i>To indicate or preface results, summary, or conclusions</i>	

The distinction between textual and interpersonal markers made in the functional approach is a reflection of Bachman's model of communicative competence (1990), and Bachman and Palmer (1996). In this model, communicative competence is subdivided into two parts, organizational competence, and pragmatic competence. Organizational competence refers to grammatical accuracy and textual competence, while pragmatic competence encompasses the relationship between utterances and the speaker's relationship to them. There is evidence which reports a relationship between communicative competence and pragmatic marker use. For example, it has been argued that in order for second language users to achieve pragmatic fluency, they must master a series of discourse strategies, such as: initiate and change topics, 'carry weight' in a conversation, uptake and respond appropriately, align one's turn by anticipating the end of others turns, and to appropriately fill or un-fill pauses (House 2003). Furthermore, pragmatic fluency has been recognised as the ability to appropriately hedge, and down-tone utterances, to carry out

appropriate speech acts according to the context, to save face, express politeness, or be intentionally vague, to mark and check shared knowledge and to reformulate or to monitor the state of shared knowledge (Lin 2016). These researchers argue that PMs are the units of speech that enable speakers to carry out these strategies. A few notable studies have investigated the relationship between PMs and communicative competence further. Such as Riggensbach (1999), who found that learners who were rated as highly fluent filled most of their pauses with a PM rather than leaving them empty, and Barón and Celaya (2010) who reported that learners who filled their pauses with PMs were perceived to have more fluent speech. Similarly, Shively (2015) studied the use of PMs and perceived fluency, it was reported that those learners who were rated as more fluent used an overall wider variety and frequency of PMs. These studies clearly demonstrate the incorporation of PMs into speech aids in perceived communicative competence.

Shifting to PM comprehension, a couple of studies were found to have investigated the processing of PMs during EMI classes. One of which, Flowerdew and Tauroza (1995), examined lecture comprehension of EMI students by playing a video lecture with all PMs removed to one group, and playing the lecture as normal to another group. They report that learners understood the lecture with PMs significantly better than those who watched the lecture without PMs. Similarly, Jung (2003) found that PMs in lectures played an important role in comprehension. These studies provide evidence that learners do attend to PMs during lectures, and that they rely on PMs to process oral discourse on an implicit level.

2.1 The acquisition of pragmatic markers in instructed second language acquisition

Due to the multi-functional nature and minimal instruction of PMs in conventional instructed second language acquisition (ISLA) the integration of PMs into one's speech becomes a challenge (Bardovi-Harlig and Griffin 2005). A reason for this may be the tendency for grammatical competence to take precedence over pragmatic competence. Despite this challenge, it is important for learners to integrate PMs into their speech otherwise undesired communication errors can ensue. For example, lack of clarity or precision, lack of coherence, difficulty on behalf of the interlocutor to follow the discourse due to lack of textual PMs use. Or the lack of interpersonal PMs could cause inappropriate style or manner, or contribute to the lack of the creation, and maintenance, of the relationship of the speakers to each other and the discourse.

Regarding the acquisition of PMs, research analyzing the effects of ISLA shows that learners tend to use PMs for a much narrower scope and frequency than NSs

do, as they seem to struggle to correctly identify the functions of the items. For example, Bu (2013) found that while learners used the same PMs as NSs, they did not use them for the same functions as the NSs did, resulting in both a restricted range and an unnatural use of PMs. Müller (2005) reported similar findings; namely, that in addition to differing patterns of PM use learners also assigned new functions to PMs that were not found in the native discourse. Other studies report an over or underuse of PMs compared to NSs'. For example, Liu (2016) studied a high and a low exposure group and found the high exposure group used PMs at a higher rate than the low ISLA exposure group. It was further noted that the functions the learners used the PMs for differed between both the learner groups and the NSs group. Similarly, Fung and Carter (2007) investigated types of PMs used, and found that learners in ISLA contexts used textual markers at high frequencies and interpersonal markers more sparingly, and that NSs used PMs for a much wider variety of functions than the learners did. The authors argue that the use of PMs reflects the type of input they receive. Research has also detected a correlation between the overall frequency and variety of PM use and overall language proficiency. Specifically, low-proficiency groups produce less PMs as well as a lesser variety than advanced groups do. So it seems that, as learners increase their overall use of PMs, the variety of functions they use them for widens as well (Neary-Sundquist 2014). To summarize, research thus far suggests that learners use PMs at a lesser frequency and variety than NS do and that as proficiency and input increase so too do frequency and variety of PMs used. It is also clear that learners struggle to identify and incorporate the wide range of functions that PMs can have, especially interpersonal markers, thus committing errors in use, overusing or underusing certain PMs. The research also points out that there is a strong need for speakers to use PMs both for their own as well as for their interlocutor's benefit, a process which appears to be mainly implicitly rather than explicitly acquired.

3. English-medium instruction in higher education

English has quickly established itself as the dominant language in higher education (Wilkinson 2004). This is particularly evident among graduate programs where the amount of EMI courses has tripled in number over the past decade (Wachter and Maiworm 2014). The term EMI has come to refer to many different types of programs, in fact, implementation and practice of EMI differs according to each institution's, and nation's language policy and goals. What is of interest to the present study is the intention of language learning within these programs. For example, Knapp (2011) identified three types of EMI: type one, international EMI programs, these are mainly master and doctoral level courses which are designed

to attract international students. International EMI courses do not state explicit language learning goals on the curriculum and are instead focused solely on teaching the content of the course, English is viewed as a means to communicate and deliver the course contents. Type two EMI courses are geared towards students of English linguistics and literature or future English teachers; these programs have clear language learning goals and include explicit formal language instruction courses. Type three EMI courses are aimed at local students in any subject, with a twofold goal, to provide specialization in the field of study, and to prepare students to use English in their professional lives. These courses are often undergraduate or master degree programs. This third type has implicit language learning goals, while they are not stated officially, nor actively supported in any way. For example, Gundermann (2014, 42–43) asserted that in the higher education context the use of “*English is linked to a language learning goal.*” And that “*In such contexts, the use of English often fulfills the purpose of practicing and enhancing language skills, alongside with content learning.*” This implicit language learning goal has been confirmed by other researchers, namely Margić and Žeželić (2015), and Sert (2008) who found that in the Croatian and Turkish contexts respectively, language improvements were expected from participation in EMI and so, it seems evident that whether stated explicitly or not, stakeholders expect linguistic gains from participation in EMI. However, language learning via EMI is yet to be confirmed by empirical research as noted by Pecorari et al. (2011, 57) “*there is a widespread belief that incorporating elements of English into the curriculum has the serendipitous effect of promoting incidental language learning. [...] this belief rests on a number of tacit and largely untested ideas.*” this points to a need for further investigation into language learning in EMI.

3.1 The impact of English-medium instruction on second language acquisition

Although second language acquisition (SLA) in the EMI context has not been widely investigated to date, there is some evidence to suggest that this learning context may contribute to language learning. For example, authenticity of interaction has been reported to positively stimulate acquisition by cognitively engaging learners (García Mayo and Lázaro Ibarrola 2015). In EMI participants attend lectures and seminars, and interact with peers and professors. These situations oblige them to process, reformulate and reproduce what they learn in their courses. In addition, they are expected to communicate spontaneously through oral, digital, and written means. These factors, combined with increased contact hours with English, provide opportunities for authentic language use, which may lead us to consider EMI to be a stimulating environment for language gains. However, there are some confounding

factors which might lead to little measureable gains from EMI alone. For example, in some cases, due to relatively low initial level in their communication and comprehension skills, EMI alone may not be enough to enhance students' proficiency in the target language (Harley et al. 1990). Secondly, most EMI programs do not offer any focus on language, which as research from ISLA points out is essential for language improvement. A third factor could be that without explicit instruction, correction, and focused teaching, content-based language learners may not reach target like production (Lyster 2017). This lack of correction and instruction combined with other features of communication strategies in ELF contexts such as tendencies to 'let it pass' and 'make it normal' when linguistic errors are made may prevent language improvement from occurring (see Firth 1996; House 1993). Finally, factors related to individual differences such as attitudes and motivations of the individual may play a role in language gains. For example, EMI students attend to and put effort into learning the content of the course rather than to focus on language form and on learning English. They report dedicating very little time to studying English and more time and effort to reading and preparing for their courses (Sert 2008; Tazl 2011).

Regarding empirical research on SLA in EMI, we find a handful of studies. Firstly, investigating English proficiency improvements, Lei and Hu (2014) measured the effect of EMI on proficiency level in a group of first and second-year university students in China. They reported no significant differences in an oral interview nor in a written exam between the EMI group and the non-EMI group. In line with this study, Ament and Pérez-Vidal (2015) found no significant differences between EMI and semi-EMI learners according to listening or writing scores. However, an improvement on grammar scores was reported in the semi-EMI group. In contrast to these studies, Ritcher (2017) who investigated pronunciation found that semi-EMI learners improved and significantly outperformed non-EMI instruction students according to perceived foreign accent. Regarding the effect of EMI on pragmatic abilities Taguchi (2011) examined the development of pragmatic competence among first-year EMI university students in Japan. She investigated the appropriateness of expressing opinions in formal and informal settings. Results showed progress in informal contexts but none in formal contexts. In a different study, Ament and Barón (2018) examined the use of PMs among EMI and non-EMI students. They found that EMI students produced a higher frequency of structural PMs and signposted more clearly. The non-EMI students, on the other hand, used more referential PMs which may be the first and easiest category of PMs to acquire. To summarize, research shows that incidental linguistic improvement from EMI participation is minimal with the exception of the domain of pronunciation and that semi-EMI participants may improve more than full-EMI participants and that context of learning plays a role in pragmatic learning.

4. Objectives of the study

The current study has a two-fold objective: to measure the use of PMs in two different intensity EMI programs, a full intensity (full-EMI) and a low intensity (semi-EMI), across two years of study (2nd and 3rd year); in order to examine the following four variables, (i) overall frequency of use, (ii) variety of types of PMs used, (iii) frequency of use of textual PMs, and (ix) frequency of use of interpersonal PMs in each of the programs. Therefore, the following two research questions have been established.

1. Are there differences in overall frequency and variety of PMs used as a result of different degrees of intensity of the EMI programs (Full or Semi-EMI) and length (2 or 3 years of exposure) to EMI?
2. Are there differences when comparing the frequency of textual and interpersonal PMs used as a result of different degrees of intensity of the EMI programs (Full or Semi-EMI) and length (2 or 3 years of exposure) of EMI?

5. Methodology

5.1 Design and participants

The study compares full-EMI and semi-EMI learners in their second year of study, with full-EMI and semi-EMI learners in their third year of study. It adopts a cross-sectional design. Participants were eighty-two students enrolled in an undergraduate degree at a university in Spain. Thirty-seven participants were second-year students, sixteen of which were enrolled in a semi-EMI program, and twenty-one of which in a full-EMI program (henceforth SIM2 and IM2). Another thirty-five participants were in their third year of studies in the same programs, eighteen of which in a semi-EMI and seventeen of which in a full-EMI (henceforth SIM3 and IM3). Data from a control group of ten native speakers served as a baseline for comparison (henceforth NS group). Results from the language background questionnaire revealed that 88% of the participants were Spanish/Catalan bilinguals and these languages were also the languages of their previous education. While 12% were from other language backgrounds (Basque, Slovenian, Chinese, Serbian and Ukrainian). All participants reported English as a third language. The mean age of participants was twenty, 41% were male, and 56% were female (see Table 2).

The full-EMI groups were enrolled in an International Business and Economics degree. Participants in the semi-EMI groups were enrolled in either an Economics or Business Administration degree at the same university. Considering that each

degree program consists of 425 contact hours per academic year, for the full-EMI group, all 425 hours are delivered through the English language, while the semi-EMI group had an exposure of 35 contact hours. Table 2 provides the number of cumulative hours spent in EMI per group and other baseline data just mentioned.

Table 2. Participants, design, and hours of exposure to EMI

Experimental groups	IM2	IM3	SIM2	SIM3	NSs
Number (Age)	21(19)	17(20)	16(19)	18(20)	10(22)
Cumulative hours of EMI	637.5	1112.5	35	70	n/a
First language	16 – Cat/Sp 5 – Other	17 – Cat/Sp	15 – Cat/Sp 1 – Other	14 – Cat/Sp 4 – Other	10 – Eng
Year of study at time of data collection	2nd year	3rd year	2nd year	3rd year	4th or 5th year

The majority of the faculty of Economics at the university in question share the same L1 as the majority of students. At the time of data collection, there was one extra-national professor who was Austrian. There were no native English speakers on staff at the faculty at the time of data collection. The lecturer’s level of English is neither certified nor controlled at the university in question, however, there are programs offered on behalf of the university to provide both training and support to faculty who teach through English. Professors report speaking English exclusively during class time and do not provide students with explicit language instruction or correction, save a glossary providing a translation of some key terms.¹

5.2 Instruments

Three instruments were designed for this study: a language background questionnaire, a monologue and an oral interaction task. All instruments were piloted previous to the study and were found to be effective and adequate at eliciting the desired type of language as well as reliable (Ament and Barón 2018).

The language background questionnaire has been discussed in the previous section. The online Cambridge placement test was administered to control for proficiency. Those participants who scored either over C1 or below B1 on the CEFR² were excluded from the analysis.

1. Data collected via personal communication with a group of faculty members.
2. Common European Framework of Reference for language.

A monologue and an interaction task were used to collect oral data. Two different types of tasks were chosen in order to broaden the communicative contexts the speakers were placed in and therefore provide more opportunities for a range of PMs to occur. The monologue task (henceforth MON) was completed individually, participants were asked to introduce themselves to the researcher and include information regarding the languages they speak, their English language learning experience, which degree they were taking and why they had chosen to take it in English.

The interaction task (henceforth INT) required participants to engage in conversation with another participant. Participants were asked three different questions that were related to their field of study. This method of data collection was chosen for three interrelated reasons: (i) it has been advocated in the literature that elicited conversations or 'interactions arranged for research purposes can be most useful sources of data' (Kasper and Rose 2002, 80); (ii) this type of procedure can elicit, interpersonal functions, coordinated speaker-listener functions, turn-taking, and back-channeling, and finally, (iii) because it has been argued that elicited conversation can tap into learners interactional competence (Kasper and Rose 2002).

5.3 Procedure

Participants completed the web questionnaire and the proficiency test online. Oral tests were carried out in sound attenuated cabins. The MON task was carried out first; two minutes were given to record the participants' responses. This was followed by the INT task. For this task, participants were organized into pairs, and they recorded themselves.³ In response to the questions, the participants were asked to include their opinions, personal experiences and anything else they felt they wanted to express. Participants were asked to discuss each question for two minutes.

5.4 Analysis

Audio recordings were transcribed and verified to ensure accuracy. The researchers controlled the coding by having another researcher re-coded 25% of the transcripts and then comparing their results, and discrepancies were discussed until an agreement was reached. The researchers identified and tagged each PM used in the MON and INT task as either textual or interpersonal. Table 3 includes examples of which items were coded as PMs.

3. Audacity software was used for recording data.

Table 3. Functions and examples of items from the data

Functions of textual markers	Items found in the data	Functions of interpersonal markers	Items found in the data
To show causal and consequential relationships	<i>Because, so, and</i>	To signal receipt of information	<i>Okay, right, yeah</i>
To indicate results/summary	<i>So, like, well, and, yeah</i>	To show support to the interlocutor	<i>Okay, great, I know, exactly, sure</i>
To indicate conclusions	<i>Finally, then</i>	To align oneself with the speaker and to signal joint construction of knowledge	<i>Exactly, I agree, totally, yeah, that's right, yes, and, in addition</i>
To mark contrast	<i>But, however, and, although</i>	To stimulate interaction	<i>Right? Yeah? Really? Great!</i>
To mark disjunction or digression	<i>Or, anyway, or something, or so, whatever,</i>	To hesitate or show repair	<i>I mean, well, sort of, kind of, I think</i>
To signal opening or closing of discourse	<i>Okay, right, alright, so, let's start, to conclude/ in conclusion, yeah, that's it, that's all</i>	To denote thinking processes	<i>Well, I think,</i>
To signal shifts or transition of discourse	<i>So, well, and then, and what about, and how about, and yeah, but</i>	To assess the interlocutor's knowledge	<i>Right? You know what I mean?</i>
To show temporal sequence	<i>First, firstly, secondly, next, then, finally, now, first of all</i>	To act as a hedging device	<i>I think, I'm not sure, kind of, sort of, you know?</i>
To show continuation of discourse	<i>And, yeah, because, so</i>	To indicate attitudes	<i>I think, definitely, basically, absolutely, exactly</i>
To Elaborate, Reformulate and exemplify	<i>I mean, like, and, it's like, that is, for example</i>		

In order to illustrate the coding process, two examples from the data are provided. The items that were considered PMs and that were coded are marked in italics with a subscript number. Following each transcript is a brief explanation of how the researcher decided to code each PM.

Example (1)

Second-year semi-EMI participants Chris and Wendy⁴ discussing question one.

<Chris>: umm *I think*₍₁₎ that communicating face to face is more spontaneous *and*₍₂₎ you think you view no you see the *reaction and*₍₃₎ it's more directly and effective *I think*₍₄₎.

<Wendy>: *Yeah*₍₅₎ *I agree*₍₆₎ with you *and*₍₇₎ other communication systems *like*₍₈₎ *I think*₍₉₎ she said letters, *well*₍₁₀₎ nowadays letters have been kind of difficult even to transport and everything *but*₍₁₁₎ we tend to not use letters, only for important things *like*₍₁₂₎ banks do and schools can also *like*₍₁₃₎ send umm letters *but*₍₁₄₎ *I think*₍₁₅₎ it's not the most effective and most useful.

<Chris>: *Yeah*₍₁₆₎ maybe it have it has been replaced umm to emails and internet. ... two turns discussing electronic communication...

<Wendy>: *So*₍₁₇₎ we would agree that it's much more effective face to face *so*₍₁₈₎ we see their reactions

In Example (1) items 4, and 15 (subscript numbers) were coded as interpersonal markers in these cases *I think* marks the speaker's attitudes towards the statement. Whereas Examples 1, and 9, *I think*, were identified as interpersonal markers and thought to function to mark cognitive processing. Examples 2, 3, and 7, *and*, were coded as textual markers; specifically, they function to show the continuation of discourse and the addition of information. Item 5, 6 *yeah* and 16 *I agree* are examples of interpersonal markers functioning to align the speaker with the interlocutor, by showing reception of information and active participation in the conversation. Items 8, 12, and 13, *like* were coded as textual markers and identified as signalling an upcoming example or elaboration on what is about to be said. Then, items 11, and 14 *but* were coded as textual markers which function here to show the contrast between two utterances or parts of discourse. Finally, Example 17, *so* was coded as a textual marker which functions here to summarize and mark the closing of the discourse, and then, item 18, *so* was considered a textual marker which, in this context, signals a causal relationship between two utterances.

Example (2)

Second-year full-EMI participants Borja and Aina discussing question two.

<Borja>: *well*₍₁₉₎ *first of all*₍₂₀₎ *I think*₍₂₁₎ technology allows companies and people to have instant *communication because*₍₂₂₎ *it's free* it doesn't cost anything *what do you think about it?*

<Aina>: *yeah*₍₂₃₎ *I think*₍₂₄₎ the same thing and also it has evolved a lot.

4. All names are made up to protect the privacy of the participants

- <Borja>: It allows people to travel *and*₍₂₅₎ *you know*₍₂₆₎ to go to another country maybe to work *and*₍₂₇₎ to have a constant communication with their family *and*₍₂₈₎ *so*₍₂₉₎ that allows people to move all over the world without ahh *you know*₍₃₀₎ ahh without distances being an important factor to take into account.
- <Aina>: (....) maybe you will ahh be less comfortable talking in public.
- <Borja>: *yeah*₍₃₁₎ *yeah*₍₃₂₎ *definitely*₍₃₃₎.

In Example (2) item 19, *well*, was coded as a textual marker, functioning here to signal the opening of the discourse. Item 20, *first of all*, functions textually to show discourse sequencing. Items 21, and 24, *I think*, were coded as interpersonal markers which function here to indicate the speaker's attitudes towards an utterance. Item 22 and 29, *because* and *so*, were coded as textual markers, which function to show causal relationships. Examples 23, 31, and 32, *yeah* were coded as interpersonal markers, serving to align the speaker with the interlocutor, by showing receipt of information and active participation in the conversation. Then, items 25, 27, and 28, *and*, were coded as textual markers, used here to mark the addition of information and continuation of discourse. Next, items 26, and 30, *you know*, were considered interpersonal markers which were operating to show shared knowledge and signal a desire to appeal to the interlocutor and co-construct knowledge. Finally, item 33, *definitely*, was identified as an interpersonal marker signalling joint construction of knowledge.

As demonstrated by the examples, the researchers coded each PM according to its function in the given context. The data were analyzed in this manner based on previous research (Fung and Carter 2007; Neary-Sundquist 2013). After coding, calculations were drawn for each participant, for a total number of PMs, tokens (frequency), total types (variety), total textual tokens (frequency) and total interpersonal tokens (frequency) per participant. Then, these totals, except for the variety measure, were divided by the total number of words uttered and multiplied by 100 to calculate the percentage of PMs used per participant in relation to total words spoken. This approach to the investigation of different types of PMs in the same study complements the typical type of study carried out in PM investigation, where the focus is on one or only a handful of PMs. Furthermore, it has been noted that 'statistical methods in qualitative studies are highly desirable because they provide research with validation methods to determine significant correlations among qualitative features of connectives' as put forth by Pons Bordería (2006, 81). The data were then analysed statistically, each variable has two levels, year of study (2nd or 3rd) and intensity of immersion (full-EMI or semi-EMI) therefore, a 2x2 factorial analysis of variance (ANOVA) was chosen to analyze the data.

6. Results

In order to prepare the data for analysis in SPSS statistical assumptions such as data normality, Levene's tests and Shapiro-Wilks tests were verified and met before carrying out the analysis. Furthermore, a Bonferroni correction was used to rule out any chance of obtaining false positives, with an alpha level of .05.

The first ANOVA explored the effect of year and immersion level on proficiency by using year, and immersion as fixed factors and proficiency as a dependent variable, the results show a significant interaction effect between year and proficiency $F(1.68) = 7.22, p = .009, \eta_p^2 = .096$. Meaning that third-year students have a higher proficiency than second-year students. Due to this interaction, proficiency was used as a covariate in the following tests to eliminate the effect proficiency plays on the data and to thus, be able to detect differences based solely on immersion and year of studies. See Figure 1.

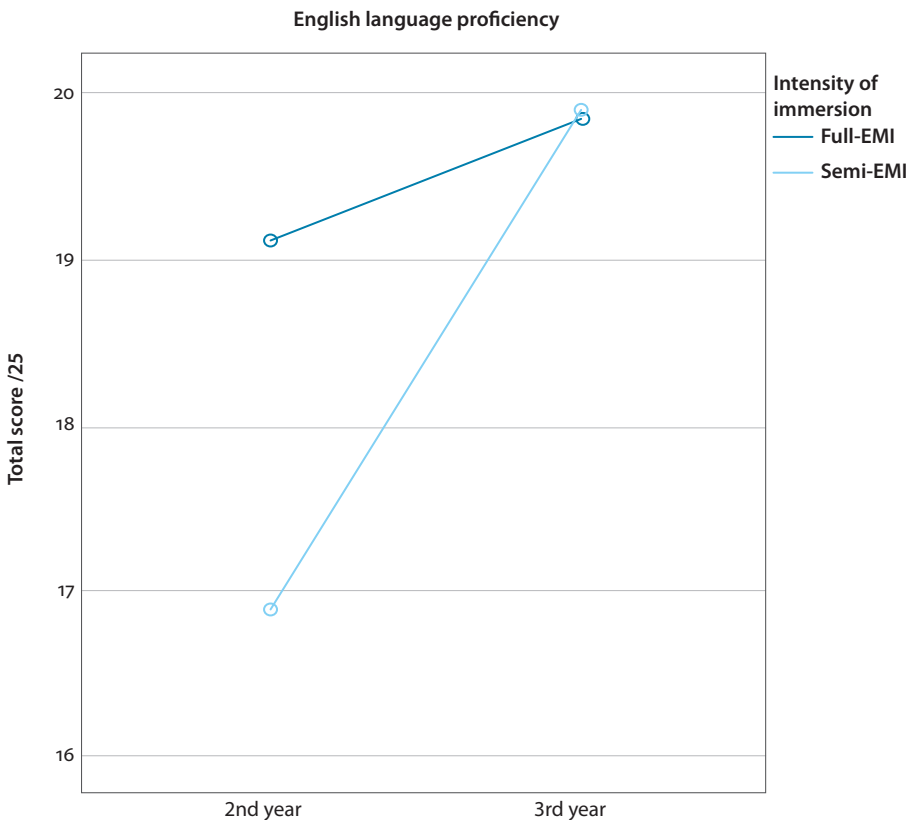


Figure 1. Proficiency level

A series of 2x2 analysis of covariance (ANCOVA)’s were then carried out to determine if there were any effects of year or immersion on the following four dependent variables; overall frequency of PMs, overall variety, the frequency of textual PMs, and the frequency of interpersonal PMs. A summary of descriptive statistics is provided in Table 4.

Table 4. Summary of descriptive statistics

Summary of descriptive statistics				
Variable	Group	Mean	Standard deviation	Number of participants
Frequency	SIM2	10.35	2.18	16
	SIM3	12.81	2.21	18
	IM2	12.3	2.26	21
	IM3	13.22	1.23	17
	NS	13.72	2.85	10
Variety	SIM2	10.5	2.99	16
	SIM3	13.2	2.24	18
	IM2	13.86	2.35	21
	IM3	14.9	1.73	17
	NS	15	2.45	10
Textual Markers	SIM2	6.27	1.22	16
	SIM3	7.81	1.14	18
	IM2	7.7	1.1	21
	IM3	8.63	1.05	17
	NS	7.02	2	10
Interpersonal Markers	SIM2	4.08	1.65	16
	SIM3	4.57	1.66	18
	IM2	4.61	2.11	21
	IM3	4.59	.9	17
	NS	6.71	2.02	10

The significance of the descriptive statistics will be described when interpreting the main effects found from the ANCOVA tests.

6.1 Total frequency and variety of PMs used

To answer the first research question ‘are there differences in overall frequency and variety of PMs used as a result of different degrees of intensity of the EMI programs and length to EMI?’ A 2x2 ANCOVA was performed, significant main effects were found between frequency of production of PMs and years of exposure $F = (1.67) = 11.2, p = .001, \eta_p^2 = .143$, and also between frequency and intensity of

immersion $F = (1.67) = 5.93, p = .02, \eta_p^2 = .08$. Furthermore, full-EMI learners consistently produced more PMs than semi-EMI learners, as is made evident in the descriptive statistics; IM2 ($M = 12.3, sd = 2.26$) and SIM2 ($M = 10.35, sd = 2.18$); and SIM3 ($M = 12.81, sd = 2.21$) and IM3 ($M = 13.22, sd = 1.23$). This result shows that there is a significant increase in the frequency of use of PMs as a result of full-EMI and that as learners spend more time in any type of EMI program they significantly increase the frequency of PM use.

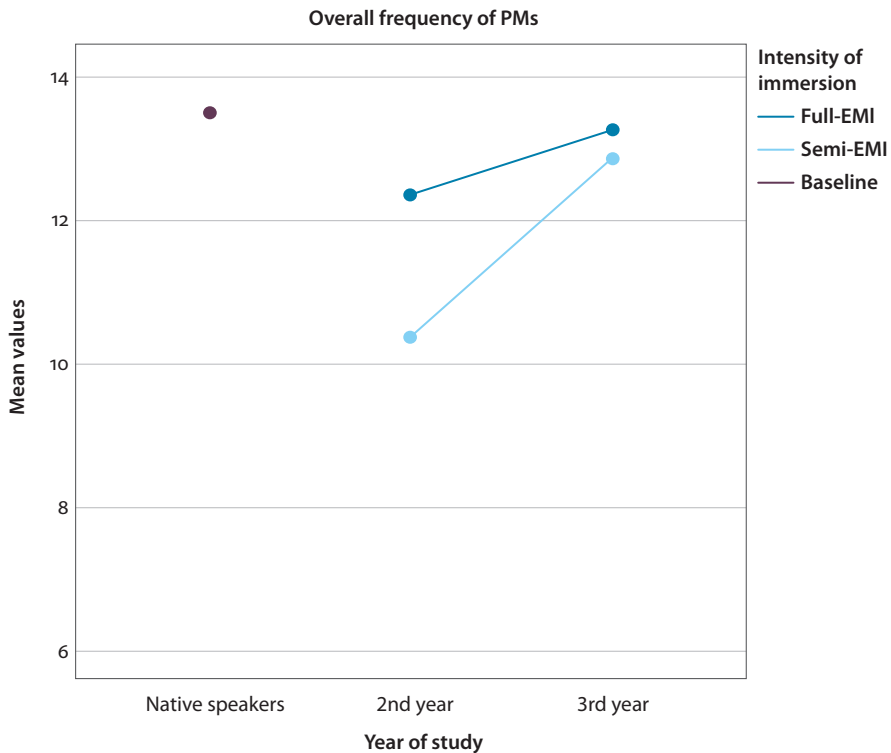


Figure 2. Frequency of markers used

Now turning to the overall variety of types of PMs used, significant main effects were found between the variety of PMs, and both, years of exposure, $F = (1.67) = 9.49, p = .003, \eta_p^2 = .124$ and intensity of immersion $F(1.67) = 18.79, p = .000, \eta_p^2 = 2.19$. This result reveals that both the intensity of immersion and years of exposure to EMI have significant effects on the variety of PMs used. Specifically, the variety of PMs used significantly increases from year two SIM2 ($M = 10.5, sd = 2.99$), IM2 ($M = 13.86, sd = 2.35$) to year three SIM3 ($M = 13.2, sd = 2.24$), IM3 ($M = 14.9, sd = 1.73$) and full-EMI learners consistently integrate a larger variety of PMs in their speech than semi-EMI learners do, see Figure 3.

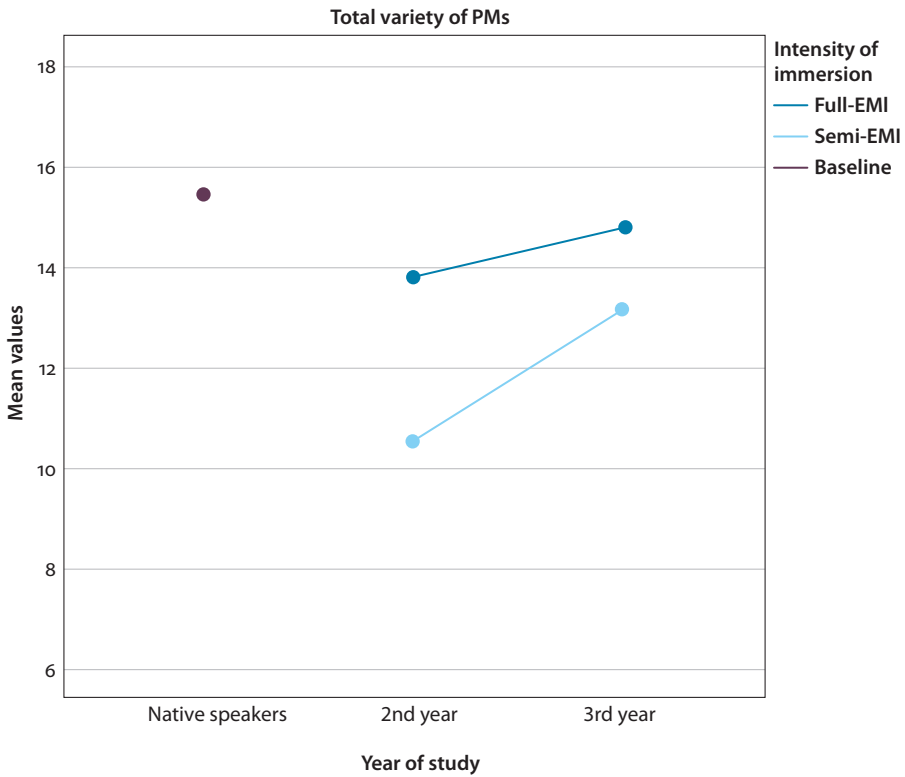


Figure 3. Variety of markers used

6.2 Frequency of textual and interpersonal markers

To address the second research question ‘are there differences when comparing the frequency of textual and interpersonal PMs used as a result of different degrees of intensity of the EMI programs and length of EMI?’ 2x2 ANOVAs were run on the data. Significant main effects were detected between the frequency of use of textual PMs and years of exposure $F(1,67) = 20.16, p = .000, \eta_p^2 = .231$, as well as for intensity of immersion $F(1,67) = 17.52, p = .000, \eta_p^2 = .207$. This result reveals that a full-EMI program has a significant differential effect on the usage of textual markers when compared to a semi-EMI program. Both groups produced significantly more textual PMs in year three SIM3 ($M = 7.81, sd = 1.14$), IM3 ($M = 8.63, sd = 1.05$), than in year two SIM2 ($M = 6.27, sd = 1.22$), IM2 ($M = 7.7, sd = 1.1$). It is further observed that both IM and SIM participants used more textual PMs than the NS baselines did ($M = 15, sd = 2.45$), see Figure 4.

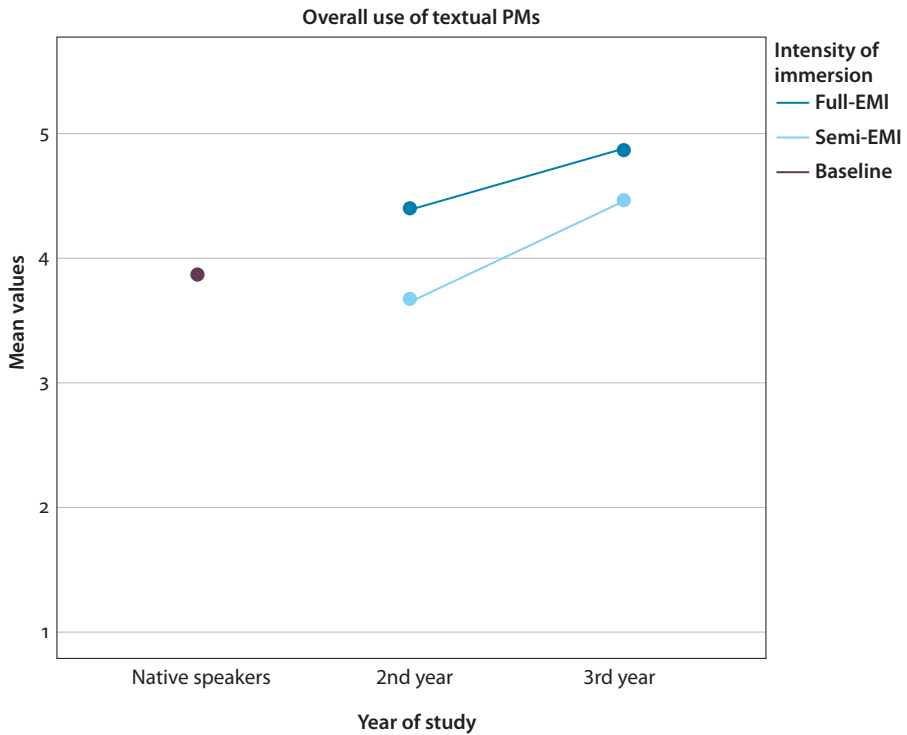


Figure 4. Textual marker use

There were no significant main effects found between the production of interpersonal PMs and years of exposure $F(1,67) = 1.11$ $p = .3$ $\eta_p^2 = .016$ or intensity of immersion $F(1,67) = .02$ $p = .89$ $\eta_p^2 = .000$. The IM group experiences no change from year two IM2 ($M = 4.61$, $sd = 2.11$), to year three IM3 ($M = 4.59$, $sd = .9$), while the SIM group experiences a slight increase in overall production of interpersonal PMs from year two SIM2 ($M = 4.08$, $sd = 1.65$), to year three albeit non-significant ($M = 4.57$, $sd = 1.66$). Neither group approaches NS baseline ($M = 6.71$, $sd = 2.02$). See Figure 5.

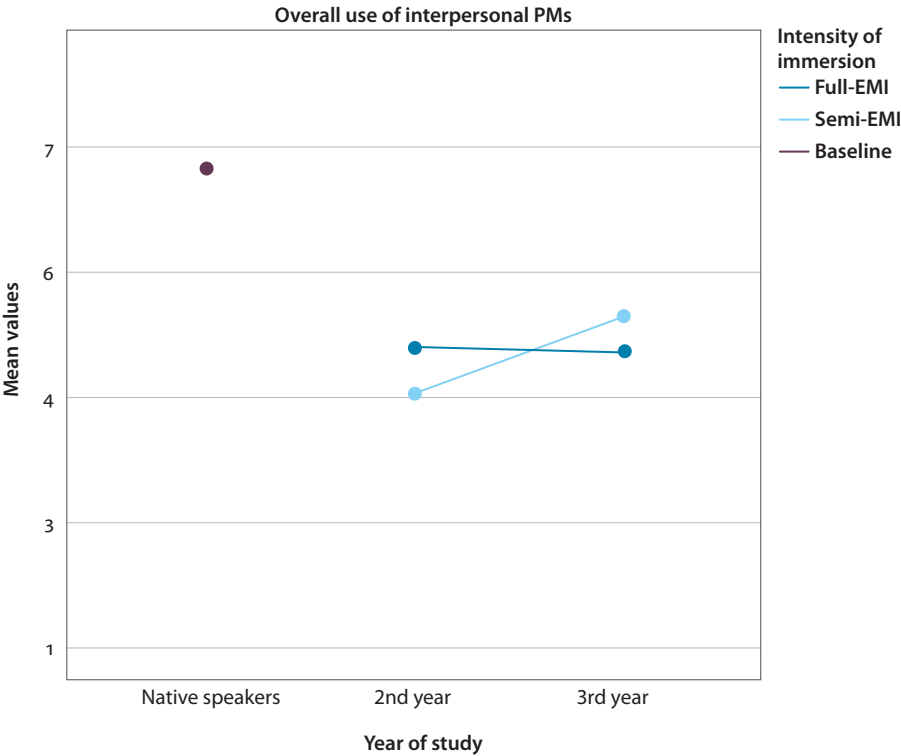


Figure 5. Interpersonal marker use

To summarize, the results for question one show that both the intensity of immersion and the number of years of exposure to EMI have significant impacts on the overall frequency of PMs, as well as on the overall variety of PMs. The results for research question two show that both the intensity of immersion and the number of years of exposure to EMI have significant impacts on the frequency of use of textual PMs, but that neither variable (year nor immersion) have any effect on the frequency of use of interpersonal PMs. A summary of the ANCOVA tests is provided in Table 5.

Table 5. Summary of ANCOVA results

Summary of ANCOVA main effects.				
Variable	Groups	F value	P value	η_p^2
Frequency	Year	(1.67) = 11.2	.001	.143
	Immersion	(1.67) = 5.93	.02	.08
Variety	Year	(1.67) = 9.49	.003	.231
	Immersion	(1.67) = 18.79	.000	2.19
Frequency of Textual PMs	Year	(1.67) = 20.16	.000	.231
	Immersion	(1.67) = 17.52	.000	.207
Frequency of Interpersonal PMs	Year	(1.67) = 1.11	.3	.016
	Immersion	(1.67) = .02	.89	.000

7. Discussion

Results from the first research question show that both intensity of immersion and length of time spent in EMI have positive effects on PM production measured through the overall frequency of production as well as through the total variety of PMs used. Regarding the second research question, results showed that both the intensity of program and the length of time spent in EMI led to an increased use in textual PMs, and, that both groups produce more textual PMs than the NS baseline group while on the other hand neither intensity nor length had a significant impact on the production of interpersonal PMs. What follows is a discussion of the results of each question and how the findings contribute to the current field of research.

7.1 Frequency and variety of use of PMs

Our full-EMI participants produced a wider variety and higher frequency of PMs. This finding is in line with previous studies, for example, Liu (2016), who analysed ISLA learners and found that those with high exposure to the target language used PMs at higher frequencies and varieties than learners with low exposure. As well as with Hellermann and Vergun (2007) who reported that increased frequency and variety of use of PMs in ISLA contexts correlated with the amount of contact with, and exposure to, the target language community. The present study adds to what is known regarding the effects of EMI on learners' language, and, more specifically, on PMs. It reveals that learners experience positive progress via participation in a semi or full-EMI program, as both groups improved significantly from year two to year three. This finding demonstrates that even with very few EMI hours the

semi-EMI group experiences significant improvement, in fact, they experience the same progression pattern as their full-EMI counterparts. The findings also show that, although overall proficiency has been found to correlate with increased use of PMs, as found in such studies as Neary-Sundquist (2014) and Fernández, Gates Tapia, and Lu (2014) who report that higher proficiency learners produced higher frequency and varieties of PMs, proficiency is not the only factor that affects the production of PMs, and other elements such as intensity of exposure play significant roles in pragmatic learning. This finding is also in line with Matsumura's (2003) study, in which overall exposure was demonstrated to be a stronger predictor of pragmatic development than proficiency level.

7.2 Frequency of textual and interpersonal PMs

Results from the second research question align with Fung and Carter's (2007) findings which showed that learners relied more on textual PMs than on interpersonal ones. A suggested explanation for this high rate of production of textual markers is the context of learning as noted by Ament and Barón (2018), EMI is a formal, academic setting, where textual PMs are likely to occur at much higher frequencies than interpersonal PMs. If we reflect on the functions of textual PMs such as to structure discourse, mark openings and closings, emphasise, and shift topics, to name a few, we can see a parallel between these PMs and the types of pragmatic functions lecturers employ when delivering their courses and therefore, which PMs are available in the input. Thus, textual markers may be argued to be more salient as well as more critical to the understanding of EMI courses, as was attested in both Flowerdew and Tauroza (1995) and in Jung (2003). So, in sum, the importance of textual PMs to the comprehension of lectures, combined with the frequent use of textual PMs in academic discourse may explain why learners produce these markers at high frequencies.

The pattern of use of textual markers contrasts with that of interpersonal markers. Interpersonal markers were used much less frequently. Additionally, significant differences were not found for either the amount of exposure nor for the intensity of immersion in either group. This could be because interpersonal markers are less salient in the EMI context and the pragmatic information they provide is not essential to comprehension. Due to this factor, learners might have a tendency to skip over interpersonal markers without processing them; this would mean these markers are cognitively attended to less than textual PMs are. This finding is in line with Firth (1996) who suggested that if a linguistic item is not essential for communication/comprehension it is often skipped over and left uncorrected as it does not provide crucial information. This finding echoes House's (2003) results, who noted a trend

for learners to not mark their relation to a proposition, and, furthermore, to not take the hearer's relation to the proposition into consideration. The participants of the present study were found to behave in a similar manner to House's participants in that they were reported to use hardly any interpersonal PMs at all, and instead, use raw negation, addition, and rejections.

Another contrast between the use of interpersonal PMs and textual PMs is that they are rarely written but instead are used at very high frequencies amongst native speakers during oral communication while on the contrary, textual PMs are highly functional in writing, and therefore, are reinforced even further in the input of the academic setting. Thus, the underuse of interpersonal markers might be explained by the learners having little exposure to English outside of the EMI classroom, and even less contact with native speakers (who use PMs more frequently than learners).⁵ In fact, in previous studies, it has been found that learners improve and increase their use of PMs as they socialize and integrate into the local community (Shively 2015). This may be why no improvement is detected on this measure in the present study, as EMI learners have little opportunity to socialize or integrate into an English-speaking community, certainly less than a study abroad or naturalistic settings would provide (DeKyser 2007; Pérez-Vidal ed. 2014). This lack of socialization may become especially clear when measuring the production of interpersonal markers, as the use of interpersonal PMs is closely related to the speech norms of a local community (Liu 2016) and in EMI there is no such speech community. Interpreting the results in light of the communicative competence model, it becomes clear that EMI learners are very aware and have a highly developed organizational competence as is reflected through their highly developed use of textual PMs and, in contrast, their pragmatic competence remains unchanged by EMI exposure (Bachman 1990; Alcón and Safont Jordà 2008). Finally, the results from this study seem to suggest that textual PMs may be more readily or easily acquired compared to interpersonal PMs. Evidence suggests that at least in the EMI context textual PMs are incorporated into speech before interpersonal PMs.

5. The professors in the present study were not native speakers of English and this could have further affected the low frequency of interpersonal PMs in the input. Although this is speculation, class observation is necessary to confirm this hypothesis.

8. Conclusions

Results from this study highlight a number of patterns, firstly, both full-EMI and semi-EMI programs have significant effects on the overall frequency of PMs, and variety of PMs. Secondly, as time spent in either full or semi-EMI program increases (from year 2 to year 3), learners experience significant increases in the overall frequency of PMs, and variety of PMs. And finally, both full-EMI and semi-EMI have positive effects on the frequency of use of textual PMs, but insignificant effects on the frequency of use of interpersonal PMs. Thus, it appears that learners experience cumulative gains over time spent in EMI and that even taking just a few courses through English can have a real impact on oral output. More specifically, due to the increased input received, learners begin to modify their output by incorporating more and more PMs into their speech, while they make progress in recognizing and identifying the functions of a wider variety of PMs. Additionally, the findings of our study show that textual PMs are acquired before interpersonal PMs. What remains unclear is whether this pattern of acquisition is due to the EMI context or if PMs are acquired in this order for other reasons not investigated in this study. Furthermore, it seems that while EMI provides plenty of input and language learning opportunities, there may be other factors necessary in order for learners to integrate interpersonal PMs into their language skills. And finally, as a consequence of the previous results coming out of our data, it would seem to be the case that organizational competence might be developed via EMI but that EMI would not so easily lend itself to the enhancement of pragmatic competence.

Some limitations of the present study are that although gains in the use of PMs have been reported, further research is necessary to assess other language domains before making large-scale policy changes. Secondly, the data were collected in a simulated conversation, it would be interesting to gather natural occurring data to get a more accurate representation of the learner's output. And finally, it would be useful to conduct a longitudinal study rather than a cross-sectional to see the change within each participant and be able to draw stronger conclusions.

Finally, the implications of the findings thus far would appear to be first, that a full-EMI program may not be necessary since significant language gains occur in semi-EMI, this then creates space for a more balanced approach towards multilingual policies, where local languages could be supported and strengthened without any loss to English or any other language. This addresses a concern brought up by many communities on how to implement parallel language policies in Sweden (Bolton and Kuteeva 2012) and The Basque Country (Doiz, Lasagabaster, and Sierra 2014) to name only two. This study also provides evidence that more support is needed via giving more attention to the explicit teaching of PMs especially

interpersonal ones. Explicit teaching or the implementation of language support for EMI students may increase learner's noticing of PMs and could lead to an accelerated acquisition of this and other language features.

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