Mariangela Picciuolo
University of Bologna, Italy

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An ELF-Oriented Corpus-Based Analysis into the EMI Lecturers' Use of Spatial Deixis across Two Different Teaching Media

ABSTRACT

In the last two decades, English-Medium Instruction (EMI) has fast increased in non-Anglophone universities, with the result that non-native English speaker (NNES) lecturers are increasingly using English as a lingua franca (ELF) to interact with their NNES students in the classroom. As such, EMI represents "a prototypical ELF scenario" (Smit 2017, 387). This paper identifies and describes language variations that occurred in EMI lecturers' talk in a comparable corpus of six EMI engineering lectures taught in two different teaching modalities: in-person and virtual synchronous classrooms. By means of a corpus-based methodology, this study particularly focuses on lexical spatial deixis as it allows the lecturer to direct students' attention towards a common referent so as to ensure students' comprehension and participation (Hyland 2005). The findings indicate that the use of proximal deictics differs according to the context, with interactional and pedagogical implications beyond EMI.

Keywords: English-medium instruction, English as a lingua franca, teachers, oral speech, EMI corpus, corpus-based methods, spatial deixis, online teaching

Korpusna analiza rabe prostorske deikse pri izvedbi predavanj v angleščini kot lingui franci preko dveh različnih učnih medijev

POVZETEK

V zadnjih dveh desetletjih se je na neanglofonskih univerzah hitro razširila raba angleščine kot medija poučevanja (AMP), zaradi česar predavatelji, ki niso materni govorci angleščine, za interakcijo s študenti, ki prav tako niso materni govorci angleščine, v razredu vse pogosteje uporabljajo angleščino kot linguo franco (ALF). Angleščina kot medij poučevanja tako predstavlja »prototipični scenarij ALF« (Smit 2017, 387). V članku predstavimo jezikovne variacije, ki se pojavljajo v govoru predavateljev v primerljivem korpusu šestih predavanj za inženirje, ki se izvajajo v angleškem jeziku in preko dveh različnih učnih medijev: v klasični predavalnici in v sinhroni virtualni učilnici. S pomočjo korpusne metodologije se raziskava osredinja na leksikalno prostorsko deikso, ki predavatelju omogoča, da usmeri pozornost študentov na isti skupni referent in tako zagotovi njihovo razumevanje in sodelovanje (Hyland 2005). Rezultati raziskave kažejo, da se raba proksimalnih deiktičnih izrazov razlikuje glede na kontekst, kar ima interakcijske in pedagoške implikacije izven AMP.

Ključne besede: angleščina kot medij poučevanja, angleščina kot lingua franca, učitelji, ustni govor, korpus AMP, korpusne metode, prostorska deiksa, spletno poučevanje

1 Introduction

In the last two decades, English-Medium Instruction (EMI) has fast increased in non-Anglophone – and particularly European – universities, with the result that non-native English speaker (NNES) lecturers are increasingly using English as a lingua franca (ELF) to interact with their NNES students in the classroom. As such, EMI represents "a prototypical ELF scenario" (Smit 2017, 387). However, studies into EMI from an ELF perspective are still quite rare, as evidenced by the fact that much research into EMI lecturers' talk still takes English native language as its "lubber line" (Doiz and Lasagabaster 2022).

Parallel to the international rise of EMI is the increasing rate of EMI courses delivered through online platforms during and after the COVID-19 pandemic. Although computer technology "has become ecological and normalized" (Zhou and Wei 2018, 471) in the language classroom, the use of newer technology in the EMI classroom is a relatively new phenomenon with little investigation.

To address this gap, this exploratory study illustrates language variations occurring in EMI lecturers' discourse when teaching in different teaching modalities – i.e., face-to-face (FTF) and online synchronous video lectures (SVL). It adopts corpus-based methods in combination with qualitative analysis to identify contextual language variations occurring in the speech of three Italian first-language lecturers teaching in EMI courses at the department of engineering at an Italian university. Since one of the major changes brought about by the shift to online teaching is related to the physical setting, this study aimed at examining variations in lecturers' use of spatial deictic markers whose meanings rely greatly on the situational context of utterance. This paper begins with a review of the theoretical background and previous research relevant to EMI lectures in both classroom-based and online settings. It provides a foundation for the present study, which adopts a case study framework and considers the relationship between contextual factors – i.e., the affordances and constraints of each teaching/learning environment – and lecturers' discursive practices. Data collection and methodology are then presented, followed by a summary of findings, which leads to a discussion highlighting the potential of integrating innovative technology into teaching methods to improve EMI lecturers' communicative effectiveness and, possibly, to facilitate students' comprehension in the EMI classroom.

2 Background

A well-known definition by Dearden (2015, 4) describes English-Medium Instruction (EMI) as "[t]he use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English." As such, the EMI classroom falls in the realm of English as a lingua franca (ELF).

However, despite the increasing "importance and amount of English as a lingua franca (ELF) usage and EMI lectures" (Siegel 2020, 73) in the last two decades, Murata (2018) underlines the "relatively unknown territory" (Siegel 2020, 1) related to ELF and EMI in educational contexts. Furthermore, Björkman (2018, 227) emphasizes that despite "the myriad of domains where English has become an important lingua franca, we are far from

having explored academic usage of English as a lingua franca fully. […] especially with respect to the importance of contextual factors, methodological approaches and data."

The study described in this paper involves EMI content courses at a university in northern Italy where such courses have existed for more than 10 years, although they have seen a recent dramatic increase in numbers. In the academic year 2021/22, 96 international courses were offered by the University of Bologna (UNIBO) – 56 taught entirely in English, and 23 including at least one English taught study programme – out of a total of 234 degree programs, resulting in a 50% increase compared to the academic year 2016/17.[1] This trend is expected to be consolidated in the coming years more broadly at the international level, "which makes this a topic of importance for tertiary education at a global level" (Siegel 2020, 74).

While previous research on EMI has often paid much attention to the proficiency levels of both EMI lecturers and students, more recent ELF-oriented EMI studies (e.g., Björkman 2010; Dang 2018, 2020; Deroey and Johnson 2021; Morell 2018; Siegel 2020; Trent 2017) have increasingly emphasized the role contextual factors play in affecting speakers' communicative practices. These studies have focused on lexis, metadiscourse markers, classroom interaction, and pragmatics.

2.1 Lexis

As Jablonkai (2021, 95) points out, "[t]o inform EMI programme developers about the linguistic difficulties students might face, corpus studies that focused on disciplinary vocabulary load and lexical complexity are of specific relevance." In academic lectures, the presence of unfamiliar words and expressions might be a serious obstacle to students' comprehension, especially for L2 students. Therefore, previous studies examining academic discourse from an ELF perspective also focused on lexical features – such as lexical bundles (Biber 2004; Biber and Barbieri 2007), their cohesive role (Nesi and Basturkmen 2006), and the frequency of formulaic expressions (Simpson 2004; Simpson-Vlach and Ellis 2010), investigating lexical variations of both oral and written academic discourse – as described in detail by Biber (2006) and Biber et al. (2002). Martinez, Adolph, and Carter (2013) investigated lexical bundles used by lecturers to introduce key terms. They revealed that the function of defining was often realized through words such as *or*, *essentially* or *basically* which carry a pragmatic meaning of which L2 students might not be aware, hence potentially hindering their comprehension. These findings are in line with Mazak and Herbas-Donoso's (2015) study of translanguaging in a Spanish EMI context, which showed that the professor mostly translanguaged key terminology as a way to apprentice students into English for Specific Purposes (ESP). Research has also investigated lexical variations across different disciplines (e.g., Dang 2018, 2020; Gardner and Xu 2019; Hyland and Tse 2007; Mudraya 2006), particularly in terms of frequency, collocation, range, meanings and functions of lexical patterns. Among these latter, Dang (2018, 2020) showed that the discourse of Hard Sciences, both spoken and written, is characterized by a higher lexical coverage than that of

[1] UNIBO Quality Assurance Committee, 2022 Annual Report. Available at: https://www.unibo.it/nucleodivalutazione/Documenti/RELAZIONE%20ANNUALE%20NDV%202022_con%20Allegati.pdf?Source=/nucleodivalutazione/default.aspx

the Soft Sciences, recommending that ESP course material should include wordlists based on a particular subject.

2.2 Metadiscourse Markers

In the last two years, there has been an increasing research interest into the use of metadiscourse markers in the EMI classroom. Metadiscourse refers to "aspects of a text", whether spoken or written, "which explicitly organize a discourse or the writer's stance towards either its content or the reader" (Hyland 2015, 14). Questions and second-person pronouns (engagement markers), and conjunctions and adverbial phrases (transition framers) are good examples of this. As such, "[m]etadiscourse reveals the writer's awareness of the reader and his or her need for elaboration, clarification, guidance and interaction" (Hyland 2015, 17). Metadiscourse markers are of paramount importance in lecture comprehension, and this especially applies to EMI lectures, which are generally monologic and highly informative (Broggini and Murphy 2017; Molino 2018). These studies have shown that, although the lecture genre, cultural issues and disciplinary culture may play a role in lecturers' use of interactive metadiscourse when teaching in EMI, as seen with the use of reminders and frame markers (Doiz and Lasagabaster 2022), certain metadiscursive features are more likely to be related to EMI, especially personal metatext forms – such as reformulations and metalinguistic comments (Molino 2018), and self-mentions (Broggini and Murphy 2017) thus revealing that EMI lectures tend to be more conversational, spontaneous and informal. Furthermore, impersonal metadiscourse expressions, such as connectives, were found to be less frequent in EMI lecturers' spoken language, and they also demonstrated a limited variety of connectors (Broggini and Murphy 2017). In this regard, Mauranen (2012) compared word frequencies in the ELFA and the MICASE corpora showing that although NNS lecturers tend to use a smaller range of vocabulary, their more limited lexical and syntactic repertoire rarely obstruct comprehension. Finally, in their corpus-based contrastive study of lecturers' use of importance markers, Deroey and Johnson (2021) found that there is little difference in the way that L1 and EMI lecturers use importance markers, but some intracorpus differences were identified, meaning that it was the lecturers' teaching experience and the educational culture, rather than their language proficiency, which also played a role in lecturers' use of metadiscursive markers.

2.3 Classroom Interaction

Interactional practices in the EMI classroom have been the focus of increasing research interest. Studies on this topic have used surveys and interviews to explore lecturers' and students' attitudes and perceptions towards classroom practices involved in EMI (Morell 2007; Picciuolo and Johnson 2020; Revell and Wainwright 2009). In the Italian context, for example, Picciuolo and Johnson (2020) show that both EMI Italian lecturers and domestic students still have a non-native accent bias, such that they mainly attribute comprehension problems in the EMI classrooms to accent and pronunciation-related issues, despite the "interlanguage benefit" (Bent and Bradlow 2003), whereas international students do not see the lecturers' accent as an important issue. Similarly, in the lecturers' view, local students' low English competence would hinder interaction in their classes, although some lecturers also indicated their own linguistic insecurity, besides lecture time constraints, as a major issue

in preventing them from engaging in longer verbal exchanges. In this regard, other corpus-based investigations in this field have focused on lecturers' use of personal pronouns as a means for engaging students with lecture content and enhancing students' comprehension, comparing pronoun frequency and function across disciplines (e.g., Johnson and Picciuolo 2022a; Yeo and Ting 2014). These studies have shown that lecturers tend to favour the use of the personal pronoun *you* but with an impersonal and generalized function, i.e., when it does not refer to the audience. Similarly, a preference for the exclusive-oriented personal pronoun *we* also appeared in EMI lecturer discourse, with little variation occurring across disciplines. Once again, these results suggest that EMI lecturers are unwilling to promote bidirectional verbal exchanges with their students (Johnson and Picciuolo 2020). However, by triangulating classroom discourse analysis with findings from lecturers' surveys, previous studies (e.g., Picciuolo and Johnson 2020) have also emphasized that the disciplinary culture and lecturers' personal attitudes and beliefs – which are nonetheless culture-dependent – are likely to affect EMI lecturers' interactional practices.

Further studies on classroom interactions in EMI settings have adopted a corpus-based approach to examining how lecturers engage students through questioning. These works have shown that EMI lecturers mainly use closed and cognitively undemanding questions (Sánchez-García 2018) such as confirmation checks, display or even referential questions, which are less likely to engender a verbal response from the students. Furthermore, although EMI lecturers' preference for confirmation checks might also be due to their greater need to monitor and ensure students' comprehension when teaching through an L2 (Sánchez-García 2018), it was more generally found to be typical of the lecture genre, with little variations occurring across different L1 and disciplinary contents (Chang 2011; Crawford Camiciottoli 2004, 2008; Dafouz Milne and Sánchez García 2013), such that differences in lecturers' questioning practices seem to be determined to a greater extent by their instructional style (Morell 2004; Northcott 2001). In this regard, Morell (2018) showed that EMI lecturers, when specifically trained, make greater use of elicitations, more cognitive demanding questions, and negotiation strategies than L1 lecturers, but they also show that these questioning practices emerge when setting up pair/group work activities, thus confirming an interdependence between contextual factors – e.g., type of learning activity being carried out, number of students involved – and discursive practices.

2.4 Pragmatics

In this regard, studies have investigated ELF speakers' use of pragmatic strategies for effective spoken academic interaction as well as to what extent contextual factors affect EMI lecturers' discourse (e.g., Alsop and Nesi 2013; Bellés-Fortuño and Fortanet-Gómez 2009; Björkman 2010, 2011). Alsop and Nesi (2013) investigated cross-cultural and cross-linguistic variations in engineering lecturers' use of summary, showing that EMI NNS lecturers used summary for previewing and reviewing current talk more often than NS lecturers, thus paying more attention to reinforcing content than NS lecturers.

Moving away from the native/non-native dichotomy, Björkman (2010) examined lecturers' and students' use of selected pragmatic strategies in two different ELF speech events (lectures

and students' work groups). She found that such strategies are employed more frequently and with a wider variety by students in group-work sessions than by lecturers in lectures. However, she also points out that variations in the type and frequency of pragmatic strategies used "cannot solely be attributed to the speakers" (Björkman 2010, 960), but rather to certain communicative goals the speakers pursue. In fact, while students might feel a greater need to get a message across in order to accomplish a shared task in the group-work session, the lecturers' "job is primarily to *deliver* the content" (Björkman 2010, 961, our emphasis). She then illustrates several strategies and examples of a lecturer's skilful use of pragmatic strategies, including "commenting on discourse contents […] labelling the speech act since the speakers verbalize what it is they do" (Björkman 2010, 956). She calls for shifting EMI lecturers' attention from achieving high L2 proficiency levels to developing a set of functional strategies, which might be viewed as more encouraging by EMI lecturers, as being faster to learn and more closely related to their academic field. In this regard, Lau, Cousineau, and Lin's (2016) study particularly focused on EMI lecturers' use of pragmatic force modifiers (e.g., *actually*, *just*, *kind of*) and found that students generally misunderstood the intended pragmatic-functional meaning of these lexical items. As such, Lau, Cousineau, and Lin (2016) call for more pragmatic approaches to be taken in providing training to EMI lecturers. In this regard, other studies have identified further pragmatic strategies EMI lecturers may use to facilitate students' comprehension, including:

> making the individual lecturer's style clear to students, making transitional signals clear, giving students focusing questions at the beginning of a lecture, pausing regularly to avoid cognitive overload, and allowing for notetaking and collaboration (e.g., Flowerdew and Miller 2000; Rodgers and Webb 2016). Repetition of key points is an additional step EMI teachers can take (e.g., Flowerdew and Miller 1996). (Siegel 2020, 80)

Overall, it is clear from this brief and by no mean exhaustive overview that much EMI research attention has been paid to lecturers' discourse, as being the "front-line instructors who are responsible for the delivery of content subjects" (Trent 2017, 220) in the EMI classroom. Furthermore, while the lecturer's English competence is not the only determining element affecting students' comprehension, previous research has long focused on EMI lecturers' English use as "it remains one of the most tangible [factor] and one that students may identify most frequently when they elaborate on their ability to understand (or not) EMI lectures" (Siegel 2020, 88). Nevertheless, in contrast to "a deficit view raising doubts about the capacity of instructors whose mother tongue is not English to deliver content subjects […] in English and to adequately support student learning in EMI environments" (Trent 2017, 220) ELF approaches to EMI have looked at EMI lecturers' classroom discourse assuming a difference rather than a deficit orientation. These studies have shown to what extent contextual and situational factors in the EMI classroom contribute to lecturers' teaching and discursive practices, emphasizing that (monologic) lecture genre, (directing) instructional style, and disciplinary culture all affect interactional patterns and classroom discourse more than lecturers' and students' linguistic difficulties. For example, Siegel's (2020) study shows that the factors affecting students' listening comprehension in EMI lectures also include students' background knowledge of the topic, students' familiarity with a lecturer's accent, and effective visual aids (e.g., PowerPoint slides) used by the lecturer.

2.5 Digital Tools and Language Learning

In this last regard, Siegel (2020) questions the use of technology (e.g., PowerPoint slides and their availability online) as a way of making lectures less demanding. As he puts it:

> Visual aids, and software such as PowerPoint in particular, have become ubiquitous in higher education. Utilizing PowerPoint during lectures is largely viewed as advantageous for both lecturers and students, as the tool supports the organization of information, notetaking and holding student attention (e.g., Roehling and Trent-Brown 2011). However […] while lecturers have technological tools to help support student learning in and from lectures, these tools need to be used with care to maximize their effectiveness. Siegel (2020, 80)

The affordances and constraints of digital resources to language teaching and learning have been widely discussed within EFL contexts. In Zhou and Wei's (2018) systematic review of research on technology-enhanced language learning (TELL) they particularly emphasize the benefits provided by the use of digital resources to teach and learn language learning strategies, particularly in terms of self-regulation and autonomous learning. The authors also stress that "[t]he pervasive use of mobile technologies and easy access to online resources require that digital language learners understand and employ appropriate learning strategies for learning effectiveness and that their teachers are able and willing to teach these strategies as needed" (Zhou and Wei 2018, 471).

Although these findings have important implications for EMI, studies investigating the use of educational technology specifically in the EMI classroom are still rare. Cicillini and Giacosa (2020), for example, investigated EMI lecturers' and students' perceptions about the shift to online teaching and learning during the COVID-19 pandemic. Their study revealed that "issues such as language proficiency and poor interaction" (Cicillini and Giacosa 2020, 59) still seemed to affect EMI in online settings in a very similar way as in EMI FTF classes. However, they also showed that the majority of both lecturers and students "succeeded in reaching their goals and improved their skills" (Cicillini and Giacosa 2020, 59) and that online learning was considered by both stakeholders as a potential force to speed up the internationalization process and make academic instruction more flexible for both local and international students' needs. Similarly, Hammond and Radjai's (2022) study shows that Japanese lecturers expressed satisfaction towards the growth of online international programs for virtual student mobility during the pandemic, as lecturers feel freer "to personally internationalize their curriculum […] without excessive external interference" (Hammond and Radjai 2022, 87). Taking a more applied linguistics perspective, Gay's (2022) study shows the effectiveness of certain digital tools (e.g., websites/apps and Moodle platforms) to help mixed-ability EMI students learn vocabulary learning strategies (VLSs) so as to increase the scope of their vocabulary as well as to promote higher levels of self-regulation. Querol-Julián (2021) identified and described EMI lecturers' communicative functions when interacting in a large EMI online lecture from a multimodal perspective. She outlined some of the major challenges facing EMI lecturers when delivering classes online for large groups, including a lack of experience in online synchronous teaching, and the separation of teachers from students, which inevitably affects interaction, as students can "hide behind technology"

and the lecturer "cannot feel the pulse of the class for understanding" (Querol-Julián 2021, 311). However, she also noticed that in online settings, "teacher discourse functions were built up by chains of non-linguistic modes that interact with linguistic mode", and that "some embodied modes were crucial in the construction of interaction, structuring, focusing and intensifying discourse, playing interpersonal functions and showing epistemic stance" (Querol-Julián 2021, 311). Nevertheless, students may find it difficult to understand "the relationship between verbal and nonverbal cues that combine to co-construct meaning within a range of academic listening situations (e.g., lectures, webinars and massive online open courses; Campoy-Cubillo and Querol-Julián 2015)" (Siegel 2020, 70).

More recently, Chien et al. (2022) examined both the verbal and non-verbal teaching materials EMI lecturers use in online courses. Verbal teaching materials include the lecturers' speech, textbooks, slides and whiteboard text. Non-verbal teaching materials include images projected on the screen or drawn on the whiteboard as well as teachers' body movements, including the way they interact with the teaching objects (e.g., the whiteboard) in the classroom. Despite being primarily aimed at presenting a new method to automate the evaluation of EMI lecturers attending training courses online, the findings from this study also support the pivotal role played by multimodal competence in achieving "educational effectiveness" (Siegel 2020, 76). Furthermore, it also acknowledges that, in the online classroom, the components which make up lecturers' multimodal competence include their ability to effectively interact with computer systems and objects in the physical world. Except from these few examples, however, EMI in online settings is still an "unexplored academic instructional digital genre" (Querol-Julián, 2021).

To address this gap, this exploratory study aims to identify and describe language variations occurred in EMI lecturers' talk as a consequence of the shift to online teaching following the COVID-19 lockdown. Since one of the major changes brought about by the shift to online teaching is related to the physical setting, this study aimed at examining variations in the use of spatial deixis.

2.6 Spatial Deixis

Spatial conceptualization and its realization in language-use has provided a vast field of research for scholars from different research areas. Starting from the pioneering works by Bühler (1934) and Fillmore (1997 [1971]), spatial deixis (henceforth SD) has come to refer to a specific set of linguistic items – e.g., speech patterns such as "*this* one" or "over *there*" – which are recruited by the speaker to refer to entities present in the perceptual spatial surroundings of the participants. As such, spatial deictic markers "function as signposts within the deictic field" (Stukenbrock 2014, 72), so as "to coordinate the interlocutors' joint focus of attention, which is one of the most basic functions of human communication" (Diessel 2006, 463).

Earlier theorizations of SD (Lyons 1977) identified three prototypical features – i.e., the interactants, a dialogic process, and a shared physical context – which constitute a "coordinate system of perceptions at whose zero-point lies what is called the ***origo***, i.e., the **I-now-here-centre** of the speaker's subjective orientation" (Stukenbrock 2014, 72, emphasis in original).

However, more recent studies have criticized the egocentricity of the deictic centre (e.g., Fricke 2002; Hanks 1990; Laczkó 2010), revealing that in dialogic interactions the spatial *origo* may also shift from the speaker's to somebody else's point of view, thus showing the participants' mutual cooperation in the co-construction of meaning. Examples of such instances include when the deictic locative adverb *here* symbolically refers to either: a) a geographical place, such as a city or a nation; b) "an imaginary *locus*" (Bazzanella 2019, 7) such as the speaker's body – what Bühler (1934) referred to as *deixis am phantasma* as in *John broke his leg here*, uttered while pointing to her/his own leg – or the speaker's visual imagination, as in Levinson's (2004, 103) example: "Imagine this room were my office. The book would be right here [pointing to the edge of my desk]"; c) another person's location, as happens in reported speech. In all these three cases, the interpretation of the referent requires that participants share "physical context, appropriate context and common ground" (Bazzanella 2019, 7) in order to be understood.

2.6.1 SD in Remote Interactions

As Bazzanella (2019, 9) points out, in written, partially synchronic interactions such as chat and text messages "[t]he lack of common physical context […] sometimes makes understanding a laborious or even unsuccessful process". For example, "*I'm **here*** − uttered on a train while using a mobile phone − is completely inadequate pragmatically, given that the interlocutor cannot guess the speaker's (unshared) position" (Bazzanella 2019, 9−10). Therefore, such an utterance requires either the speaker or the interlocutor to use conversational strategies (e.g., auto-correction, repair) in order to achieve mutual understanding.

In this last regard, the technological developments of the last two decades have produced dramatic changes in communication practices. Computer-Mediated Communication (CMC) environments – e.g., instant messaging and video-conferencing platforms – have facilitated communication among people across space and time by offering a wide range of visual, symbolic, spatial, and deictic channels of communication. However, "remote communication is still limited compared to face-to-face interaction (Eisert 2003), in particular concerning deictic expressions" (Medrano, Pfeiffer, and Kray 2020, 1867). Therefore, much research in Human-Computer Interaction (HCI) dealing with deictic communication in distributed interactions has paid increasing attention to the use of remote pointing gestures as an effective resource to structure and direct participants' visual attention (see, e.g., Kirk, Rodden, and Fraser 2007). However, to the best of our knowledge few studies have analysed participants' use of spatial deictic expressions in virtual interactions. Among the few studies that do exist, Fussell et al. (2004) investigated the effects of remote pointing gestures on language in collaborative physical tasks showing that the use of pointing gesture tools led to less verbose referential expressions amongst the instructors, being replaced by higher rates of proximal deixis use – e.g., *this*, *here* – which in turn was correlated with faster task performance.

2.6.2 SD in English

In English, SD is primarily expressed through devices such as demonstrative determiners and pronouns *this*/*these* and *that*/*those* and locative adverbs *here*/*there*.

Furthermore, English speakers divide space in binary ways, with *here*, *this*, and *these* marking something proximal (or close) while *there*, *that*, and *those* indicate entities distal (or distant) in relation to the speaker's point of reference, whether the referent is physically or psychologically close or distant (Cairns 1991). In fact, as Cairns (1991) points out, speakers' use of SD not only reflects the concrete physical distance from the speaker or addressee, but it also creates a psychological distance from a proposition in order to express an attitude. In this regard, of particular interest are examples (1) and (2). In example (1) from Friginal et al. (2017) the teacher points to a typing mistake that a student identified. Notice that when the teacher points out the mistake, she uses *that*, but uses *this* when indicating what is correct.

(1) T: yeah, oh **that is** wrong, yeah it's wrong you were right it is wrong. yeah, I have to, now **this is** correct actually that's a good thing you pointed that out Diep now see Diep, was a, a teacher. (L2CD-T-13) (Friginal et al. 2017, 124)

Example (2) is an excerpt from our sub-corpus of online synchronous video lectures (SVL) EMI lectures.

(2) T: one solution which I don't have time to go to get into now, but I think. It is worthwhile, you know, looking it because it's a nice example of adversarial networks. </s><s> Is **this** one. So if you're curious, look at **that**. (Lect 2_SVL)

Here, the lecturer first uses *this* when referring to an object (i.e., the image of an adversarial network) which is obviously closer to the lecturer, since it is visible to him on his screen and then shared through a video-platform. But in the following utterance he does a straightforward reformulation and uses *that*. It might be argued that the demonstrative *that* is used to refer to the previous sentence instead, thus working as anaphoric reference or discourse deixis[2] rather than SD. However, the co-occurrence with the verb *to look* suggests that the demonstrative *that* is rather used to point to an object. Furthermore, with this reformulation the lecturer discursively replaces "distance" with "proximity" transferring the object from the speaker's position (i.e., his own) to the addressee's perspective (i.e., his students). This, in turn, seems to highlight "the common spatial context" of the lecturer and students (Bamford 2004, 135) as a demonstration of social proximity.

2.6.3 D in Lecture Discourse

SD is of critical importance in lecture discourse (Fillmore 1997; Levinson 1983). Example (3) below shows a lecturer from our SVL sub-corpus showing a picture (Figure 1) to his students.

(3) T: look at the blue line or the black line. **these** are moving averages of concentration of isotopes in the atmosphere (Lect 1_SVL)

SD allows the lecturer to anchor students in the physical space of the classroom (Friginal et al. 2017) and "to establish a joint focus of attention on a referent" (Peeters, Hagoort,

[2] Exploring the differences between anaphoric reference and discourse deixis goes beyond the purpose of this study, so we will henceforth generically refer to anaphora. For further reading on this see, for example, Cornish (2007).

and Özyürek 2015, 64) so as to ensure students' comprehension and participation (Hyland 2005). However, despite their importance in FTF interactions, few studies have specifically examined SD in classroom discourse.

Bamford (2004) observed that university lecturers made greater use of gestural *here* to make reference to visuals and to highlight "the common spatial context" of the lecturer and students (Bamford 2004, 135) as a demonstration of social proximity. In addition, she observes that the use of deixis is one way lecturers tailor their talk to students' linguistic needs. Biber (2004) also found that referential bundles (i.e., lexical bundles including SD as in *that's one of the*, and *this is a*) occur only in classroom teaching as a means to identify an entity. Furthermore, Yang (2014) showed that *that* and *this* are among the top 20 most frequent words in Chinese college EFL teachers' discourse as in the MICASE corpus.

Friginal et al. (2017) particularly focused on SD in the English for Academic Purposes (EAP) classroom. They found that teachers shift from proximal to distal SD equally, thus directing learners' attention to entities proximally and distally from their own speaker territory, which is also reflective of higher contextualized and interactive classrooms. They also found that *that* occurs more frequently than *this*, which is typical of casual conversations. Finally, they showed that the frequency of *here* is higher in EAP classrooms than in university lectures, which may be attributed to the greater need to physically contextualize lesson content and activities in EAP classrooms than university lectures.

Example (4) from our FTF sub-corpus shows a lecturer alternating between proximal and distal SD as a kind of negotiation between his students and his own point of reference.

(4) T: but then this counts together with the description that says **this** is a critical section, **that**'s a critical section (Lect 3_FTF)

Since we found no systematic studies in the literature on the use of SD in EMI lecturers' speech, this exploratory study reports on a corpus-based comparative discourse analysis of lexical spatial deixis used by EMI lecturers at university in two different teaching modalities, FTF and SVL. As this study only involved three lecturers, the findings and discussion cannot be generalized but instead are intended to raise awareness among lecturers and students, as well as researchers and educational policy makers, of the potential of applying a technology-enhanced approach to onsite EMI teaching.

3 Methodology

To examine and compare EMI lecturers' discourse across the two teaching modalities, we extracted six lectures from the EmiBo corpus (Johnson and Picciuolo 2022b) to build up two comparable sub-corpora of the same lecturers giving their EMI classes in two different teaching modalities (FTF and SVL). The following sections describe the study setting and the participants, as well as the data collection tools and methods. Finally, it is important to note that lecturers' demographic data were collected in 2018 as part of the initial stage of a wider

project carried out at the targeted university.[3] Demographic details were collected by means of surveys and interviews of EMI lecturers (Picciuolo and Johnson 2020). As such, these data will henceforth be referred to as secondary data.

3.1 Participants

Three EMI lecturers at a university in northern Italy volunteered to participate in the project. All three taught in EMI master's degree courses at the department of engineering. When this research was carried out, all three lecturers had been teaching in EMI classes for more than five years. From our secondary data, we observe that all three lecturers are L1 Italian users and speak English as an L2, with a self-declared English language level of C1 of the Common European Framework of Reference (Council of Europe 2022). Furthermore, two lecturers (Lect 2 and Lect 3) ranged in age between 41 to 50, while one lecturer (Lect 1) was over the age of 65.

Table 1. Lecturers' demographics.

Lecturers	Lect 1	Lect 2	Lect 3
Age	> 65	41-50	41-50
L1	Italian	Italian	Italian
Self-declared English language level	C1	C1	C1
EMI teaching experience	> 5 years	> 5 years	> 5 years
EMI classroom attendance rate on average	<25	75-100	25-100

As shown in greater detail in Table 1, attendance at these master's degree lectures ranged widely, from fewer than 25 to 100 students, with little difference between the two teaching modalities. The L2 English proficiency levels of the students who attended the selected lectures were not measured directly for this study. Nonetheless, according to the enrolment policies of the university where this study took place, to be eligible for an EMI course, students must provide proof of English language qualification at a level of B2 of CEFR (2022). Lect 1 and Lect 3 stated that international students attending their classes accounted for 50-75% of the total, while in Lect 2's classes less than 10% of the total were non-domestic students. Finally, secondary survey data collected in 2018 show that the most frequent nationalities of origin of students attending EMI courses at the selected department were Indian, Norwegian, Azerbaijani, Iranian, German, Syrian, Brazilian, Kazakhstan, Portuguese, and Italian.

3.2 Data Collection

The targeted participants' demographics and average attendance rates at the selected lecturers were collected through surveys conducted between 2018 and 2020 with both lecturers and students attending EMI classes at the department of engineering of the university where this study took place (Picciuolo and Johnson 2020). For the purposes of the same project, lecture audio-recordings of FTF classes were collected between 2018 and 2019, whereas lecture

[3] The "Insegnare in lingua inglese all'UNIBO" project started in 2018 and was assisted by funding from UNIBO Research Grant number ID-51465.

video-recordings of SVL were voluntarily shared by the same targeted lecturers through the online platform Microsoft Stream between 2020 and 2022. The transcripts of these lecture recordings are now part of a monitor corpus, the "EmiBo Corpus" (Johnson and Picciuolo 2022b). The study presented in this paper reports in particular on six EMI lectures extracted from the EmiBo corpus.

More specifically, this analysis focuses on six EMI engineering lectures delivered by three Italian lecturers in two different teaching modalities (FTF and SVL) over a time span of three academic years. Data referring to duration and word counts of each lecture are shown in greater detail in Table 2.

Table 2. Duration and word count of each lecture in the two sub-corpora.

	Lecturers (Lect)	Year	Duration (min.)	Total duration/ modality (min.)	Words	Total words/ modality
FTF	1	2018	90	**258**	11,266	**22,434**
	2	2018	66		6,526	
	3	2019	102		4,642	
SVL	1	2020	144	**302**	17,567	**32,562**
	2	2020	111		10,362	
	3	2020	47		4,633	
Total	**3***		**560**		**54,996**	

3.3 Data Collection and Analysis Procedures

To examine and compare EMI lecturers' use of spatial deixis across different teaching modalities, we first extracted six lectures from the EmiBo corpus to build two sub-corpora (FTF and SVL). We limited our analysis to demonstrative determiners and pronouns (*this*/*these*, *that*/*those*), and adverbs of location (*here*/*there*). Using the corpus tool SketchEngine (Kilgarriff et al. 2014) we searched electronically for each instance of these deictic markers. Upon identifying all examples in the two sub-corpora, each potential item was examined manually in its context in order to determine whether it was functioning as a spatial deictic, or not. Annotation was done manually using the tool SKEMA (which stands for SketchEngine manual annotation). Therefore, demonstratives and locatives that did not function as spatial deixis were excluded from the analysis. After identifying those demonstratives and locatives that only functioned as spatial deictics, the tokens were normalized to occurrences per 1,000 words (ptw). Additionally, using the SketchEngine N-grams function, the two sub-corpora were analysed for the most common recurring two- to five-word lexicogrammatical phrases, and the concordances were examined to determine whether these clusters were used in a spatial deictic sense. Finally, we looked for lexical collocations of the SD and compare these across the two teaching modalities.

4 Results

As not all the instances of demonstratives and locatives acted as spatial deixis, manual analysis was necessary. Table 3 shows that out of nearly 3,000 items, only about 600 were found to function as SD markers.

Table 3. Total number of occurrences of demonstratives and locatives identified in the corpus (raw), and the number of occurrences of these demonstratives and locatives when serving as SD markers.

WORD frequency	FTF		SVL		TOT.	
	Raw	**SD**	**Raw**	**SD**	**Raw**	**SD**
that	544	15	784	24	1,328	39
this	260	68	468	197	728	265
there	172	17	250	3	422	20
here	78	65	166	143	244	208
these	58	12	111	29	169	41
those	7	1	11	4	18	5
Total	**1,119**	**178**	1,790	400	2,909	578
% of tot. items		**20%**		**22%**		**20%**

The following examples show when the demonstrative *this* functions as SD (5), and when it is not SD (6), but rather as anaphoric referent (A).

(5) **SD**: if you look at the graph which is here hopefully yeah **this** is a nice graph and I try to make it, ok **this** nice graph. I try to make it larger, shows you the fuel consumption (Lect 1_FTF)

(6) **A**: how can we estimate these implications? I told you that **this** is another big question mark. because actually the effect of global warming on flood frequency on flood. magnitude on (Lect 1_SVL)

Table 4 shows the distribution and normalized frequency of proximal, distal and total SD used in the 2 sub-corpora.

Table 4. Comparison of proximal and distal SD in FTF and SVL.

	FTF	ptw	SVL	ptw
Proximal deixis	145	6.46	369	11.33
Distal deixis	33	1.47	31	0.95
Total	**178**	**7.93**	**400**	**12.28**

As can be seen, in both FTF and SVL the lecturers overwhelmingly preferred proximal to distal deictics, signalling that they tend to perceive space within the speaker's territory (i.e., their own). This may be partially explained by the fact that the two sub-corpora consist primarily of whole class talk where the teachers do most of the talking.

However, Table 4 also shows that while lecturers in FTF use about eight SD in 1,000 words, in SVL they use 12 SD in 1,000 words. This may be partially explained by the fact that in online classrooms all elements – not only maps and graphs, but even words and sentences – are more visually salient. This is exemplified by the following three instances (examples 7, 8 and 9) all extracted from our online SVL sub-corpus.

(7) Sorry, there's a question. *How was BERT trained to be able to do all these tasks?*

OK, so the question. So **this** is a question **here**. I will repeat the question *how was BERT trained to be able to do all these tasks?* (Lect 2_SVL)

(8) the tasks in GLUE are single sentence task, similarity task, paraphrase task, inference task, and **these** are some examples of **these** tasks (Lect 2_SVL)

(9) two things we have to get from **this** sentence. first we are still in a glaciation. but within this glaciation there is, I'm selecting an alternating series of […] (Lect 1_SVL)

Example (7) shows that in the online classroom even a question from a student gains visual salience, as it is posted in the chat (indicated in the transcription as being inserted between asterisks **) and spoken out loud by the lecturer. In example (8), anaphoric references (i.e., *these tasks*) gain visual salience as they referred to learning objects which materialize while being shown on the screen. Finally, sentences (example 9) are written and highlighted by the lecturers and therefore become visual objects.

This result is in line with Fussell et al.'s (2004) study where higher rates of proximal deixis use were found in computer-supported remote collaborative tasks, which were also correlated with faster task performance.

In this respect, a recent study by Wu et al. (2021) showed that "visual salience shortened the reading times of key concept terms" and that, in particular, "visual salience accelerates the lexical processing of visually salient information and helps readers build faster and more elaborate connections between visually salient information and associated content" (Wu et al. 2021, 146).

4.1 Demonstrative SD

As with our findings of overall proximal and distal deixis use, Table 5 shows that the lecturers preferred the proximal SD *this*, which diverges from previous findings which showed that university lecturers rather prefer *that*, thus showing that EMI lecturers tend to position classroom participants and objects proximally within their own territory.

Table 5. Comparison of the frequency of SD demonstratives in FTF and SVL.

	FTF	ptw	SVL	ptw
that	15	0.67	24	0.74
this	68	3.03	197	6.05
these	12	0.53	29	0.89
those	1	0.04	4	0.12
Total	**96**	**4.28**	**254**	**7.80**

Furthermore, Table 5 also shows that the singular forms of demonstratives are much more common than the plural forms in both sub-corpora, which supports Biber et al.'s (1999) analysis of conversations and the of Friginal et al. (2017) on EAP lecturers' talk. However, our findings contradict Biber et al.'s (1999) with regard to the singular SD demonstrative *this*, which was found to be more common in academic writing than conversation, whereas EAP lecturers preferred *that*. In contrast, in our study the lecturers preferred to use the proximal

SD *this* more in online settings. We discuss the implications of this further in the discussion section.

4.1.1 Demonstrative SD: N-grams

Turning to the most frequent lexical phrases, we only found one two-word cluster that occurred at a minimum of 0.5 ptw (which is the criterion we established to minimize the impact of individual speaking styles). This could be because of the small size of our corpus.

Table 6. Comparison of the frequency of the n-gram this is in FTF and SVL.

this is	**tokens**	**ptw**
FTF	20	0.89
SVL	38	1.17
Total	**68**	**1.24**

As shown in Table 6, the proximal SD *this is* occurs 0.89 ptw in FTF and 1.17 in SVL. This result ties in with Friginal et al.'s (2017) study, where the most frequent lexical phrase in EAP lecturers' discourse was found to be *this is* (2.34 ptw), and this might indicate the lecturers' attempt to draw students' attention to their proximal space and that, as Biber (2004) showed, might also serve as referential bundles used to identify an entity, as in the following examples (10, 11):

(10) T: so let me see if you. can see. my screen yes so **this is** what you see. here it's our calendar and actually it's. it doesn't include the lecture that I. did on March 23rd […] (Lect 1_SVL)

(11) T: you'll do that think of of a share integer variable that we: can: call: ur:m number of waiting threads or N urm NW so: nw so: **this is** the: the number number of threads (0.2) waiting […] (Lect 2_FTF)

4.2 Locative Deictic Adverbs

Table 7 below shows that lecturers favour *here* over *there*. In FTF, nearly 80% of the adverbs are *here*, while in SVL approximately 98% are *here*. Compared to the findings from Bamford (2004) and Friginal et al. (2017) we note that the frequency of *here* in EMI lecturers' talk online is much closer to that of EAP lectures.

Table 7. Comparison of frequency of SD locative adverbs in FTF and SVL.

	FTF	**ptw**	**SVL**	**ptw**
there	17	0.52	3	0.09
here	65	2	143	4.39
Total	**82**	**2.52**	**146**	**4.48**

Finally, upon examining potential clusters, no lexical phrases with *here* were found, and therefore we do not discuss this any further.

4.3 Lexical Collocations

We also looked at the collocational behaviour of SD words, i.e., left, right and total collocates of SD words in our corpus. As the demonstrative *this* and the locative *here* are the most frequent words serving as SD in our small corpus, we only focused on the collocational behaviour of these two SD words.

The Word Sketch in Figure 1 shows that in FTF *this* often co-occurs with state verbs (*be*, *become*). Conversely, in SVL lectures, although *this* often co-occurs with the verb *to be* (which is consistent with previous findings on lexical clusters – i.e., *this is*), it is also often accompanied by the verb *to look*. This may be explained by the fact that in SVL, lecturers' discourse focused on a greater extent on visuals.

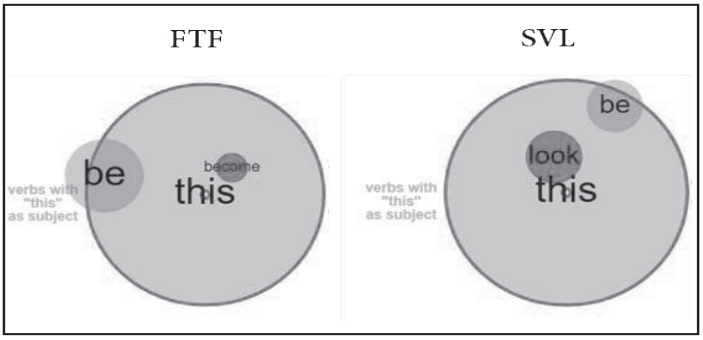

Figure 1. Lexical collocations of the SD demonstrative this in FTF and SVL.

The greater reliance of lecturers' discourse on visuals in the online classroom is more prominent when looking at the collocates of *here*: Figure 2 shows that in SVL *here* often co-occurs with verbs of seeing (e.g., *see*, *read*, *show*, *depict*) and verbs related to the digital classroom space (e.g., *to click*).

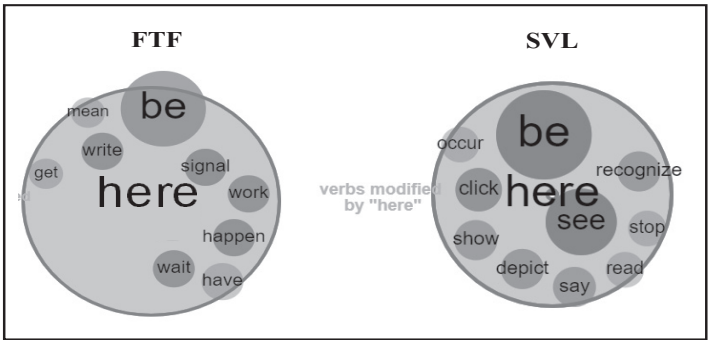

Figure 2. Lexical collocations of the SD locative adverb here in FTF and SVL.

5 Discussion

This study compared the speech of three Italian L1 EMI lecturers when teaching at EMI courses delivered at the UNIBO in different teaching modalities (FTF and SVL). All lecturers

in our study were experienced lecturers who had taught in EMI courses at the faculty of Engineering for more than 5 years. All of them self-declared a C1 level of English competence according to the CEFR (2022). Furthermore, while Lect 2' and Lect 3's age ranged between 41–50 (i.e., "Generation X") Lect 1 was more than 65 (i.e., "Baby Boomer" generation), which suggests that the lecturers in this study had different attitudes towards the use of internet and modern digital technologies (Pirhonen et al. 2020).

As this study was intended to provide a first glimpse on the variations occurring in lecturers' discourse when shifting to the online teaching modality, this analysis focused on their use of spatial deictic markers whose pragmatic use is heavily dependent upon the physical context of utterance.

We first selected six lectures from the EmiBo corpus (Johnson and Picciuolo 2022b) and then built two sub-corpora – FTF and SVL – each made up of three lectures delivered by the same lecturers in the two modalities. We particularly focused on the demonstrative adjectives and pronouns *this*/*these* and *that*/*those* and the locative adverbs *here*/*there*. We used corpus analysis tools to electronically search for all the instances in which these items occurred in our corpus. However, given that the targeted demonstratives and locatives not only function as spatial deictic markers, but also as anaphoric reference, for example, we manually annotated each instance in order to assess whether they were functioning as SD or not. We found that in SVL 22% of the total number of demonstratives and locatives function as SD, while in FTF this figure slightly decreases to 20%. Although there is no significant difference between the two settings, this ratio seems to suggest that in both contexts lecturers tend to refer more often to something mentioned in the current discourse (e.g., through anaphora) while they tend to refer less to the physical objects in the spatial context of utterance. As Cornish (2007) points out, English demonstratives, when functioning as discourse deixis or anaphora – i.e., which "involve reference via the discourse context upstream" (Cornish 2007, 137) – "operate at the level of memory organization" (Cornish 2007, 138). As such, a higher reliance on anaphora and discourse deictic expression in EMI lecturers' discourse might put a heavier cognitive demand on the student.

The findings from this study have also shown that in both FTF and SVL the lecturers overwhelmingly preferred proximal to distal deictics, signalling that they tend to perceive space within the speaker's territory (i.e., their own). This "highly egocentric positioning" (Friginal et al. 2017, 121) is also indicative of their monologic and directing instructional style, which previous research (Broggini and Murphy 2017; Molino 2018) found to be common in tertiary education.

However, our corpus-based analysis also showed that in SVL lecturers used SD significantly more frequently than in FTF, and that in the online classroom EMI lecturers also showed a higher preference for the singular SD demonstrative *this*, which was found to often occur in the lexical expression *this is* used to identify an entity (Biber 2004) in the spatial surroundings. In our view, this may be partially explained by the fact that in SVL lecturers more often refer to learning objects which are pointed to on the screen, thus gaining more visual salience. The greater reliance of lecturers' discourse on visuals in the online classroom is more prominent when looking at the collocates of *here*. In FTF, nearly 80% of the adverbs are *here*, while in SVL approximately 98% are *here*. Given that the deictic use of *here* was found to be typical

of the discourse surrounding visuals in lectures (Bamford 2004), the higher occurrence of the locative SD *here* in SVL would thus confirm our hypothesis. Furthermore, by looking at the collocational behaviour of *this* and *here* we found that they often co-occur with verbs of seeing (e.g., *see*, *read*, *show*, *depict*) and verbs related to the digital classroom space (e.g., *to click*). Finally, compared to the findings from Bamford (2004) and Friginal et al. (2017) we note that the frequency of *here* in EMI lecturers' talk online is much closer to that of EAP lectures. This, in turn, would suggest that in the online classroom EMI lectures feel a greater need to physically contextualize lesson content and activities.

6 Conclusions

Previous ELF-oriented studies investigating EMI lecturers' discourse both in FTF and online settings have shown that contextual factors – such as the lecture genre, cultural issues and disciplinary culture – play a pivotal role in lecturers' speech production when teaching in EMI, though too much research attention is still paid to their level of English competence, taking a deficit (rather than a difference) perspective.

This exploratory study aimed to identify and describe language variations that occurred in the use of lexical SD in three engineering EMI lecturers' talk as a consequence of the shift to online teaching during the COVID-19 pandemic. It is underpinned by an ELF theoretical orientation as it aimed at identifying linguistic cues that might substantiate the implementation of strategies to enhance EMI lecturers' communicative competence as well as students' comprehension in the EMI classroom. Building on the strengths of corpus methods, it also aimed to contribute to the still scarce corpus-based literature on EMI (Jablonkai 2021).

The findings from this study seem to suggest that the shift to online teaching involved a reconceptualization of space in EMI lecturers' discourse, which might have some important pedagogical implications.

Considering that the three lecturers kept the same – monologic – teaching style for online classes, proximal SD deixis would be most frequent in SVL because lecturers and students shared the same visual space. To put it simply, as shown by Fussell et al. (2004), in remote computer-mediated collaborative tasks, when the instructor is aware that the participants share his/her view of the scene, he/she can manipulate the visual field such that he/she "can refer quickly and efficiently to task objects, tools, and the like by using short-hand expressions and pronouns" (Fussell et al. 2004, 32) such as the SD terms *this* and *here*. Therefore, the findings from this study support the benefits of increasingly integrating digital tools in EMI teaching. In ELFA (English as an Academic Lingua Franca) settings – such as the EMI classroom – the lecture comprehension of L2 students might particularly benefit from more reliance on the lecturers' part on visuals, as was found to happen in SVL, because the referent – regardless of being mispronounced, for example, or weakly stressed by the lecturer, or unknown to the students – is pointed to verbally by the lecturer, while being displayed visually on the screen.

Furthermore, this research also supports including EMI lecturers' digital competence as part of that multimodal competence EMI lecturers needs to achieve to improve their "educational effectiveness" (Siegel 2020, 76).

This study could certainly be further improved as far as the measure, scale and scope of the analysis are concerned. Further studies should also compare individual lecturers' use of SD in the different teaching modalities, also considering that the way lecturers interact with technology and, therefore, with visuals, might also differ according to their age, and/or their acquaintance with new technology. Furthermore, future research might also implement the present study by taking a multimodal discourse analytical perspective and investigating the way lecturers use both verbal and non-verbal resources with a spatial deictic reference, also including the way they interact with the learning objects through technology. Finally, students should be involved at a later stage to test these preliminary observations. In this regard, the potential of technologies such as eye-tracking should be exploited to detect how students' visual and cognitive attention changes across different teaching modalities.

Nonetheless, the findings from this study might contribute to increasing EMI lecturers' as well as researchers' awareness of the affordances of digital tools, something that is likely to improve EMI lecturers' effectiveness and foster students' comprehension, even beyond the EMI classroom.

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