

How does Digital Context Influence Interaction in Large Live Online Lectures? The Case of English-Medium Instruction

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Abstract

This paper examines the evolving genre of university lectures. It focuses on synchronous online lectures. The aim of the study is to shed some light on how interaction between teacher and students unfolds in large English-medium instruction (EMI) lectures in the digital context. A qualitative multimodal microanalysis of an episode of interaction was performed from an (inter)action multimodal analysis framework. This preliminary exploratory study reveals the structural and multimodal complexity of interaction in live online lectures. EMI teacher's semiotic resources combine to make meaning comprehensible in a lingua franca and to engage learners in a virtual context where there is not eye-contact with them. Suggestions are made to undertake contractive studies on interaction in online and face-to-face lectures that may respond to the need of EMI teacher training. This paper aims to contribute to the literature of this still unexplored academic instructional digital genre.

Keywords: synchronous videoconferencing; live online lectures; large lectures; interaction; English-medium instruction; multimodality

Introduction

Lectures evolve in response to the internationalisation and Englishisation of higher education. This change is articulated by two important trends: the rise of English-medium instruction (EMI) and innovative online instructional technologies (Querol-Julián and Crawford Camiciottoli 2019). EMI in higher education has been investigated extensively. Nonetheless, there is still a lack of research on classroom discourse (Macaro et al. 2018) and interaction (Morell 2020), and the focus has generally been restricted to face-to-face lectures. However, the rate of online courses has skyrocketed in the last years. The main reasons can be institutional internationalisation policies, but also the adaptation to new social situations that can become

the breeding ground for new models of education where technology will play a leading role.

Literature on interaction in online courses is abundant, although it mainly focuses on text mediated communication and the concepts of social presence and teacher immediacy (Swan 2002; Garrison 2017). Less attention has been paid to the specific event of synchronous videoconferencing lectures (SVLs). One of the main concerns in SVLs is interaction and the risk, for faculty transition to online instruction, of adopting teacher-centred approaches that make student engagement difficult during the virtual class. Engagement is linked to critical thinking and has an important impact on intellectual and personal growth (Pascarella 2006). Thus, one of the teacher's responsibilities in class is to promote engagement through interaction, a goal that can be achieved through emotional connection with students (Hodgson 2005), and also through online classes (Henrie, Halverson, and Graham 2015). Sun and Chen (2016, 157) argue that effective online instruction depends, among other features, upon "motivated interaction between instructor and learners." However, findings about interaction in SVLs are contradictory. It seems that teachers value interaction during the sessions (Ward, Peters, and Shelley 2010) positively; nonetheless, students do not evaluate positively their ability to ask questions either in the virtual or the physical context (Kunin, Julliard, and Rodriguez 2014), which can have major consequences for learning. A general conclusion of discussion on interaction in live online lectures is that students and teacher must adapt their ways of interacting (Hampel and Stickler 2012). Additionally, faculty members have reported that face-to-face teaching is more natural because "discussion" is more abundant, students cannot hide behind technology, and that they could better "feel the pulse of the class for understanding" (Terras 2017, 44). Literature comparing online and face-to-face courses seems to be critical regarding students' performance. Wagner, Garipo, and Lovaas' (2011) longitudinal study identifies no significant differences in the two contexts of delivery. Students, however, seem to prefer face-to-face learning for communicative purposes (Paechter and Maier 2010). Yet, research has shown that interaction resulting from the use of videoconferencing in class is comparable or better than face-to-face (Foronda and Lippincott 2014).

Teaching and learning in EMI contexts involves communicating in a language that is not the first language of the speakers but a lingua franca. Querol-Julián and Crawford Camiciottoli's (2019) literature review of students' lecture comprehension in EMI revealed that many students express problems in understanding EMI lectures. Accordingly, "we cannot assume students' language proficiency is adequate to follow the instructional sessions (17)". Thus, EMI lecturer's multimodal interactive strategies will be essential to ensure learning and will be even more significant in the virtual context where there is not eye contact with learners.

The use of multimodal resources (Gibbons 2003) allows the lecturer to build linguistic bridges when interacting with learners. Multimodality means recognising the use of different semiotic resources, the differences among them and the way they are combined in actual instances of meaning making (Jewitt, Bezemer, and O'Halloran 2016, 14). Yet, the study of interaction from a multimodal discourse analysis perspective at university is still at an infant stage and limited to language teaching. Hampel and Stickler's (2012, 135) study on language tutorials through audio and text communication found that "the environment shapes interaction, how users adapt the available tools to their purposes and how different modes can be used in a complementary, compensatory and competing manner."

This paper aims to increase our insight into interaction in large live online lectures by reporting the findings of a qualitative multimodal microanalysis to determine how interaction unfolds in the digital context of an EMI lecture. The research questions of the study are:

- How do lecturer and learners participate in the interaction?
- How does the combination of semiotic resources used by lecturers facilitate the understanding of meaning and learners' engagement during interaction in English as a lingua franca?

The Study

Sample

The analysis was conducted on an episode of teacher-student interaction that took place in a large online lecture (75 students). The episode had a duration of 1min. 47sec. The lecture was part of a 15-week English-medium instruction (EMI) course in Education given in an international master's degree programme in a Spanish university. This was the third lecture of the course. English was a lingua franca since the teacher and most of the students were not native speakers of English. The teacher was Spanish and had the C2 proficiency certificate in English, according to the Common European Framework of Reference for Languages (CEFR). The learners were from different countries, but Spanish was also the L1 of most of them. To enrol in the programme, they have certified to have an English language proficiency level of B2 or upper.

Adobe® Connect™ was the web conferencing system that enabled synchronous computer-mediated communication, i.e. all the participants were online simultaneously during the lecture. The teacher communicated through an audio and video system and the students used a live writing chat. It was not necessary to ask permission to the students to record the

lecture because all the sessions of the course were videorecorded, as it is usually done in this programme.

Methodological Framework and Analytical Procedure

The (inter)action multimodal framework (Norris 2004, 2019, 2020) was adopted to undertake the research. One of the main concerns of this approach is the study of social interaction. The unit of analysis of this perspective is mediated action, the idea of an actor acting through mediated means (Scollon 1998). Norris (2004) described lower-level mediated actions, which are the smallest units of meaning, such as a hand gesture or an utterance; and higher-level mediated actions, which are demarcated by an opening and a closing, and are conformed by chains of lower-level mediated actions. In line with this, the concept of scales of actions (Pirini 2015; Norris 2017) is paramount when investigating social interaction with multiple higher-level mediated actions. Scales of actions show the interrelation between various lower-level mediated actions, as each one is also part of a larger higher-level mediated action. Additionally, Norris (2004) also described frozen actions, which are actions performed before the real-time interaction, e.g. an electronic presentation, a survey, or a 3D object such as a book, which are created before the teacher can actually use them in class.

To understand how interaction unfolds in EMI live online lectures, first, I have represented the interplay of teacher and student actions during the episode; and then, I have examined the development of the teacher's communicative intentions during the interaction. ELAN¹ was the software that has supported the multi-layered analysis of higher-level mediated actions, lower-level mediated actions, and rhetorical moves. These discourse features were analysed without any previous assumptions or expectation –“corpus-driven” approach (Tognini-Bonelli 2001). The reason for having adopted this approach is the lack of previous research in live online lectures in the EMI context. To perform the analysis of how the teacher communicative intentions changed and unfolded within the episode, I broke it down into functional moves. Then, a multimodal microanalysis of the teacher discourse was conducted. Paralanguage, kinesics and other modes were transcribed (e.g. the description of hand and arms movements, facial expressions and trunk movements, and gaze direction), the type of gestures were identified (i.e. deictic, iconic, metaphoric or beats), and all the semiotic resources were annotated as regards their function (e.g. referential, cohesive, interactive, pragmatic) and type of interaction with the speech (show synchrony, add meaning, go beyond) (Querol-Julián and Fortanet-Gómez 2012).

During the microanalysis, the mode language has received special treatment, since the linguistic and paralinguistic semiotic sub-modes that conform it have been analysed independently. Thus, the mode talk refers only to the linguistic utterances. Silence has been studied as a paralinguistic feature and a component of interaction (Poyatos 2002), as well as other paralinguistic features such as syllable prominence. Yet, only eloquent silence was considered in the analysis. Eloquent silence differs from pauses in that it is “a means chosen by the speaker for significant verbal communication alongside speech” (Ephratt 2008, 1909). Regarding gaze, just like gestures that move away from a “rest position” and always return to a “rest position” (Schegloff 1984), it seems that looking at the chat was the gaze rest or home position in this live online lecture. One should expect this gaze rest position during the episodes of interaction since students only communicate through the chat. Thus, following previous studies on home position in gestures (Sacks and Emanuel 2002), I have only annotated gaze shifts when the object of interest of the teacher gaze was other than the chat.

To protect the anonymity of the participants, each student was assigned an identification number. The term “talk” was also used to refer to student written utterances, following the convention that blurs the distinction between writing and talking in some similar digital genres (Tornow 1997). The transcription of the participation of the students has been a major methodological challenge for the research because of the nature of the computer-mediated conversation. More specifically, the main difficulties were as follows: i) Similar to other instant text messaging services, one could see that the students were writing on the chat but their actual talk was not displayed until they sent their messages. Thus, the beginning of the annotation of the students’ action writing on the chat was marked when the name of the learner appeared on the screen showing that they were writing, and the end was marked when their utterance was actually displayed on the screen. ii) Many students that appeared to be writing did not eventually send their messages; yet, their intention to participate was also annotated as student writing on the chat. In this case, the end of this annotation was marked when the name of the student disappeared from the screen. iii) When more than two students were writing at the same time, the system did not display all the names but just indicated that several users were writing. iv) The student and the teacher talk were not synchronised. In general, their talk overlapped, and sometimes the student responses popped out when the teacher had already shifted the topic of discussion.

Lecturer and learners actions

The results of the analysis of the interplay of teacher and student actions during the interaction are presented in Figure 1. This shows the visual representation of the scales of higher-level mediated actions, teacher and students talk and silence, and students' identification when they were writing on the chat and when their talk was displayed on the screen.

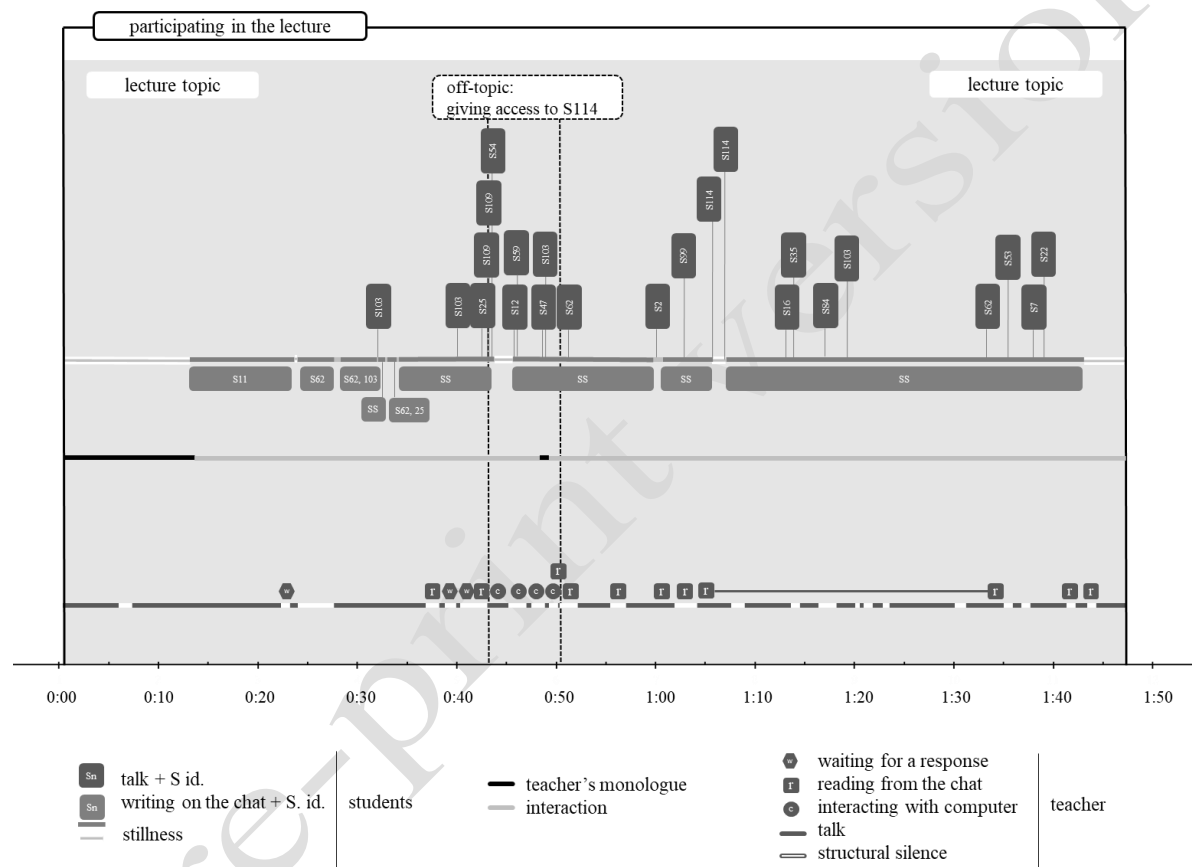


Figure 1. Visual representation of an episode of interaction from a live online lecture.

The main scales of higher-level mediated actions that built the highest scale of participating in the lecture were: constructing knowledge about the topic and dealing with off-topic situations. From the teacher's perspective, at a lower scale level he was engaged in monologuing or interacting. At the lowest scale, he was waiting for students' response to his questions, reading from the chat their contributions, and interacting with the computer. Only two higher-level mediated actions were identified in the students at the same scale: writing on the chat or being still.

This figure illustrates the complexity of simultaneous interaction that teachers may face in large live online lectures. Unlike face-to-face lectures, it seems that interaction in large live online lectures does not typically follow a sequential unfolding (Querol-Julián 2021). For example, one off-topic situation took place when the teacher gave access to the class to one student (Example 1 shows the transcription of this episode). The transition between a higher-level mediated action constructing knowledge about the topic of the lecture (1, 13) and the action of dealing with one off-topic situation (4) was marked by lower-level mediated actions (Norris 2004), gaze shift from the chat to the screen and back to the chat. During this action, the teacher was silently interacting with the computer (5) and with the student (8) –acknowledging the student’s presence when he was in the classroom. The teacher used a topic-shift discourse marker (11) to move back to the action constructing knowledge about the topic that the rest of the participants were engaged in. Evidence of this engagement is the students’ simultaneous writing (6) and their talk displayed on the chat while the teacher was dealing with the off-topic situation (2, 7, 9, 10) and after it (12).

Time (seconds. milliseconds)				
	Begin time	End time		
(1)	00:00:43.700	00:00:45.075	T	yeah otherwise you <gaze: chat>
(2)	00:00:44.009	-	S12	maybe the same but adapted
(3)	00:00:44.018	00:00:44.787	SS	[stillness]
(4)	00:00:44.089	00:00:50.046	T	<gaze: screen>
(5)	00:00:45.075	00:00:48.569	T	[silence] <interacting with computer>
(6)	00:00:44.787	00:01:02.321	SS	<writing on the chat>
(7)	00:00:44.841	-	S59	more complex than that
(8)	00:00:46.345	00:00:47.430	T	ok S114 name
(9)	00:00:46.968	-	S47	more complex yeah
				Not the same. They are from other
(10)	00:00:47.131	-	S103	cultures.
(11)	00:00:48.569	00:00:49.191	T	ok
(12)	00:00:49.929	-	S62	no you have to scaffold it
				<silence: reading from the chat> <gaze:
(13)	00:00:50.046	00:00:50.049	T	chat>

Example 1

Discourse Functions and Multimodality

Results of the study of the teacher communicative functions when interacting with learners revealed that a total of 37 rhetorical moves were used to construct the episode. These were playing the main roles of: organising discourse and interacting (see Crawford Camiciottoli 2007). As the study aims to provide a detailed account of teacher-student interaction, specific subfunctions are also described. In what follows, I will discuss these (sub)functions. The account will also include findings of the linguistic and non-linguistic communicative modes that realize them.

Functions	Subfunctions
organising discourse	• introducing the topic
	• structuring
interacting	• initiating interaction
	• integrating student(s) response(s)
	• acknowledging student(s) response(s)
	• giving positive feedback
	• acknowledging student's presence

Table 1. Teacher communicative (sub)functions when interacting in a large EMI live online lecture.

Previous research has underscored the role of verbal organising discourse cues (Jung 2003) and, particularly, of metadiscourse markers in facilitating comprehension of second language lectures (Flowerdew and Tazouza 1995). However, all throughout this episode, the teacher uttered some linguistic discourse markers –“okay”, “let’s see”– that in combination with other semiotic modes, such as head and hands movements, intensified their structuring function (see Bernad-Mechó’s [2018] study on face-to-face lectures).

Initiating interaction

The teacher opened the episode of interaction orienting the audience towards the topic of discussion, introducing the topic, “let’s move to the okay revision of teacher roles”. Then, the teacher tried to engage the audience in the construction of knowledge, initiating interaction through an audience-oriented question that evoked audience response (Tsui 1992). Example 2 shows the microanalysis of this move.

	Mode	Begin time	End time		
	Silence	00:00:00.814	00:00:14.825	SS	Stillness
(1)	<u>Gaze</u>	00:00:07.490	00:00:13.022		Looking up
	Talk	00:00:11.283	00:00:23.337	T	teaching um in a bilingual context <u>do</u> you think it's the same as teaching um well <i>the content</i> you are teaching in you mother tongue, but NOW in a different language, <u>do you think it's THAT?</u>
(2)	<u>Hands movement</u>	00:00:13.056	00:00:14.226	T	Rubbing hands + holding own hands (self-adaptor gesture)
(3)	<u>Gaze</u>	00:00:14.226	00:00:21.478	T	Looking away from the camera/chat (gaze aversion)
(4)	<u>Hands movement</u>	00:00:14.226	00:00:14.962	T	Hand palms facing each other Moving hands forwards and backwards (beat gesture)
	Talk	00:00:14.825	00:00:23.335	S11	Writing on the chat
(5)	<u>Hands movement</u>	00:00:14.962	00:00:16.226	T	Holding own hands (self-adaptor gesture)
(6)	<u>Hands movement</u>	00:00:16.226	00:00:21.509	T	Hand palms facing each other Moving from left to right once (metaphoric gesture)
(7)	<u>Trunk movement</u>	00:00:17.120	00:00:17.856	T	Shrugging shoulders
(8)	<u>Hands movement</u>	00:00:22.367	00:00:23.178	T	Hand palms facing each other Moving down once (beat)
(9)	<u>Head movement</u>	00:00:22.613	00:00:23.340	T	Head sweeping from left to right

Example 2²

We can observe a modal aggregate built up by six modes (gaze + talk + paralanguage + hands movement + trunk movement + head movement) that shows how initiating interaction unfolded. The teacher formulated a question extensively –“teaching um in a bilingual context do you think it’s the same as teaching um well the content you are teaching in your mother tongue but now in a different language”– and then reformulated it in a short and direct form “do you think it’s that?.”

The teacher started the episode looking up while introducing the topic and he maintained this gaze direction until he initiated the question (1). It seems that, in the Western culture the teacher belongs to, this eye gaze displays a mental process of thinking (McCarthy et al. 2006).

The teacher seems to be struggling to organise discourse. He oriented the lecture introducing a new topic, but instead of deploying content-oriented functions such as informing or elaborating on the topic (Deroey and Tavernier 2011), he chose to engage learners in a process of interaction, reflection, analysis and discussion (Weimer 2002), by asking a question.

A self-adaptor gesture (2) that co-occurred with the opening of the interaction “bilingual context” – rubbing hands and holding own hands – may also be revealing low emotional stability (Neff et al. 2011). A similar self-adaptor gesture was repeated later (5), after having formulated the question. In the same line, gaze aversion during most of the excerpt (3) also shows that the teacher was engaged in a difficult cognitive activity, planning what he was saying (Doherty-Sneddon et al. 2002). It is expected that the advanced level of English that the teacher has did not pose any difficulty to elaborate his speech, but English was not his mother tongue and this could have influenced his performance too. It seems that the interaction of gaze direction and beat gestures with talk goes beyond the meaning conveyed by the linguistic component. The non-verbal cues are not adding meaning related to the one expressed by the verbal cues, but they show attitudinal stance, expressing the teacher’s state of mind.

The teacher used beat gestures when formulating the questions. The first time (4), beats accompanied the core of the elaborated question: “do you think is the same”. The second time (8), beats co-expressed with the short question: “do you think it’s that?” and the stroke of the gesture co-occurred with the pronoun “that”, which was intensified with phonetic stress (loudness up). Beats can serve important pragmatic and discursive functions such as marking focus, rhythm, and structure (McNeill 1992; Shattuck-Hufnagel et al. 2016). In these instances, beats could be marking the focus of the interactive discourse, the core of the questions. Additionally, when formulating the short question, the teacher made an exaggerated head sweep from left to right (9) with possibly an intensification function (McClave 2000).

As regards the questions, these are referential questions; namely, the answer is not known by the teacher. Literature on questions in face-to-face EMI courses at university from a cross-disciplinary perspective has revealed that referential questions are the less frequent types (Dafouz Milne and Sánchez García 2013), and that questions are in general “[...] at the lowest levels of cognitive complexity either requiring students to retrieve learned knowledge from their long-term memory or engaging them in understanding instructional content” (Hu and Duan 2019, 10). Moreover, researchers reported that referential questions are difficult for students with low English proficiency level because they call for extended responses (McNeil 2012). However, although the questions in the excerpt were referential questions and the teacher could expect extended responses, these were formulated as a yes/no answer question. This could

have facilitated the participation of all the group regardless their English competence. Students may choose to answer with just one word or to elaborate their answers, as some of them did.

Furthermore, this seems to be a question of low level of cognitive complexity as body language could also be expressing; for example, the teacher shrugged shoulders (7) when uttering “the content”. Shoulder shrugs play a role of stancetaking. They can be markers of distance or disengagement (Streeck 2009) but they can also function as epistemic-evidential markers (Debras and Cienki 2012, 936), i.e. “the gesturer’s degree of knowledge of, and commitment to, a state of affairs, as well as the origin of this knowledge”. In the example, shoulder shrug could be showing ignorance about learners’ position. Yet, it could also be conveying obviousness of a state of affairs, based on general knowledge (Debras and Cienki 2012; Jehoul, Brône, and Feyaerts 2017) for the group, i.e., knowledge that the teacher took for granted that the learners should have.

When explaining the question –“the content you are teaching in your mother tongue now in a different language”– a metaphoric gesture was used (6) – hand palms facing each other and making a single movement from left to right. Metaphoric gestures represent abstract ideas (McNeill 1992). It seems that the referent of this gesture could be the idea of “change”. The change from teaching content in the mother tongue to teaching it in English. The onset of the gesture could be referring to the initial situation – teaching in the mother tongue – and the end of the gesture to the hypothetical present situation – teaching in English –, which is the one that is important for the discussion. It seems the metaphoric gesture synchronises with the verbal utterance and intensifies its meaning. The “present situation” is also given more force when the adverb “now” received phonetic stress (loudness up).

Integrating Student(s) Response(s) and Acknowledging Student(s) Response(s)

After having initiated the interaction, the teacher expressed two communicative subfunctions integrating student(s) response(s) and acknowledging student(s) response(s). According to Mortiboys (2012), considering students’ views and acknowledging them, not only as a group but also individually, are features of teaching with emotional intelligence. Taking the emotional dimension into account, being sensitive to students’ feelings – for example, when they participate during the session in a language that is not their mother tongue – is one strategy that EMI teachers may use to create a positive emotional learning environment. Thus, when the teacher integrates student(s) response(s) and acknowledges student(s) response(s), the students may feel their talk is valued, that what they said is important and has contributed to the

construction of the class. The sense of belonging to the group may be increased, as well as the student motivation and engagement, during the session.

In this episode, the teacher integrates student(s) contributions using three different discourse strategies:

- i) Reading the contribution without making changes.
(S16) no, it is much more complicated
(T) it's much more complicated
- ii) Reading the contribution making minimum changes.
(S103) we need to teach how to express those contents too
(T) it's just how to express those contents
- iii) Selecting some key words and paraphrasing.
(S16) It is much more difficult! you have to adapt it
(T) much more difficult, how to adapt, adaptation

Example 3 illustrates the multimodal transcription of how the teacher selected key words to integrate the contribution of several students. Seven modes built up a modal aggregate in this instance (hands + talk + silence + facial expression + gaze + trunk movement + paralanguage).

	Mode	Begin time	End time	
(1)	Hands movement	00:01:22.726	00:01:24.693	T Finger counting (touching left hand fingers with the right hand forefinger) (metaphoric gesture)
	Talk	00:01:24.242	00:01:31.615	T difficulty because of language and content, you're saying, mental processes for cognition too, you are referring to that <silence> level of st//
	Talk	-	-	S28 Not exactly the same, we need plenty of adaptability
	Talk	00:01:31.616	00:01:33.994	T //udents, CULTure integration of culture ve//
	Talk	-	-	S36 It's a bit more complicated, you'd need to adapt content
		00:01:33.994	00:01:35.235	T //ry important
(2)	Hands movement	00:01:24.693	00:01:25.971	T Pointing at the chat (deictic gesture)
(3)	Facial expression	00:01:25.820	00:01:29.281	T Raising eyebrows
(4)	Hands movement	00:01:25.971	00:01:26.156	T Finger counting (touching left hand fingers with the right hand forefinger) (metaphoric gesture)
(5)	Hands movement	00:01:26.157	00:01:26.767	T Pointing at the chat (deictic gesture)
(6)	Hands movement	00:01:26.769	00:01:32.323	T Finger counting (touching left hand fingers with the right hand forefinger) (metaphoric gesture)
(7)	Gaze	00:01:27.838	00:01:28.849	T Looking at the camera
(8)	Hands movement	00:01:27.848	00:01:28.855	T Pointing at the chat (deictic gesture)
(9)	Trunk movement	00:01:28.054	00:01:29.027	T Moving trunk forward
(10)	Head movement	00:01:28.054	00:01:29.027	T Moving head upward
(11)	Head movement	00:01:31.031	00:01:31.899	T Moving head downward
(12)	Hands movement	00:01:32.324	00:01:33.557	T Pointing at the chat (deictic gesture)
(13)	Facial expression	00:01:32.582	00:01:33.137	T Raising eyebrows
(14)	Head movement	00:01:32.582	00:01:33.137	T Moving head forward

Example 3³

The general answer to the question was that teaching in a bilingual context is more difficult than just teaching in English. The teacher reported four reasons: “language and content”, “mental processes”, “level of students”, and “culture”. Some verbal cues – “you’re saying” and “you are referring to that” – and non-verbal cues – silence – could play a structural function.

They could provide a separation between reasons to facilitate their identification. At the verbal level, the pronoun “you” was used with one of the main functions that it plays in EMI lectures, a direct reference to the students, as previous studies have revealed (Dafouz, Nuñez, and Sancho 2007). In so doing, the teacher acknowledges student(s) participation. The teacher empowers students by giving them a “voice” in the construction of knowledge in class and recognises their contributions. These verbal cues may have an interpersonal function, and the structural silence employed to introduce the list of reasons – “you are referring to that <silence> level of students [...]” – could be considered as an example of “eloquent” absence of talk with a significant verbal communication (Ephratt 2008).

Talk co-occurred with a metaphoric gesture of finger counting (1, 4, 6) and a deictic gesture (2, 5, 8, 12) of pointing at the chat. The metaphoric gesture may help in the construction of discourse units (McNeill, Levy, and Duncan 2018), by accomplishing a referential function (Kendon 2004) where each finger could be representing one topic. The deictic gesture may be interpreted as an interpersonal gesture (Bavelas et al. 1992), since pointing at the chat could be perceived by the students as being pointing at them. This could be another communicative cue of the teacher acknowledging the students’ contributions, involving them, and establishing good rapport with them.

The development of the lecture revealed that “content”, “cognition” and “culture” were central issues in the discussion created during the session. It seems the teacher had that in mind when selecting the key words to integrate the students’ contributions. The microanalysis showed that these key words were co-expressed with non-verbal modes that may have an intensification function, raising eyebrows (Dachkovsky and Sandler 2009) and moving head (McClave 2000). Thus, “content” was synchronised with raising eyebrows (3); “cognition” with a gaze shift looking at the camera (7), raising eyebrows (13), moving trunk forward (9) and moving head upward (10); and “culture” with phonetic stress (loudness up) and moving head forward (14). When looking at the camera the teacher tried to “establish eye contact” with the students. Although he could not see them, they realised that the teacher was demanding their attention, possibly because he considered that what he was saying was important. Thus, looking at the camera in this excerpt might have an interpersonal function, fostering engagement and showing stance.

Finally, the teacher expressed appreciation for valuing the worth of things (Martin 2000), i.e. he showed a positive attitude towards the students’ interventions. By saying, “integration of culture very important”, he evaluated the contribution and sent a positive message. Giving positive feedback and acknowledging student’s presence in class (Example 1)

are subfunctions that could also have the role of establishing a relationship with the audience, shaping a propitious learning environment. As Deroey and Taverniers (2011, 14) state regarding interacting, “(t)he pedagogical importance of this discourse function basically lies in creating an atmosphere that is conducive to learn.”

Conclusions and Further Research

The main contribution of this study is the description of the structural and multimodal complexity of interaction in an excerpt of a large EMI live online lecture. The microanalyses have also illustrated some methods to analyse and represent this interpersonal event. We cannot draw conclusion about these phenomena from the detailed analysis performed on just an episode of interaction, but it has provided revealing insights about them. First, simultaneous interaction could be a challenge for teachers that are novice at synchronous videoconferencing for large groups. Second, the teacher used different multimodal discourse strategies to integrate students' contributions to the flow of the lecture. Third, teacher discourse functions were built up by chains of non-linguistic modes that interact with linguistic mode, showing synchrony, adding meaning to words or going beyond the meaning expressed through words. Fourth, some embodied modes were crucial in the construction of interaction, structuring, focusing and intensifying discourse, playing interpersonal functions and showing epistemic stance.

The microanalysis of the episode of interaction has also revealed that the EMI lecturer used a combination of various semiotic resources that make meaning more understandable to “all” the learners, when asking questions and when acknowledging their contributions. Multimodality seems to be central to engage learners through interaction in English as a lingua franca and in a context where students can “hide behind technology” and teachers cannot so easily “feel the pulse of the class for understanding.”

Further research is called for in painting a comprehensive picture of interaction in EMI large live online lectures. There is an urgent need to study episodes of interaction performed by different EMI lecturers and in different disciplines in similar contexts. The nature and knowledge-making practices of the academic discipline determine the way language is used and its purposes (Kuteeva and Airey 2014). In terms of discipline, we will be able to shed some light on its influence on how multimodal interaction unfolds in EMI lectures and the likenesses and differences in disciplines such as Social Sciences and Technical Sciences. It would also be interesting to study interaction in the EMI face-to-face class from this analytical framework and compare results, as well as to conduct contrastive research on the interactional multimodal strategies that are transferred from one environment to the other and from teaching in the mother

tongue to teaching in English. This would contribute to the awareness of EMI lecturers' multimodal interactional competence.

The results of this study might help the design of EMI teachers training courses from different disciplines who are involved in the transition from on-campus to virtual lectures or who teach in the two contexts.

The natural evolution of the genre of lectures to the digital context can make higher education more accessible to everyone and can play a crucial role in the internationalization of the university as a response to globalization. Nonetheless, live online lectures and face-to-face lectures cannot be regarded as two different genres only because there are some variations in their structural elements. For example, in a similar manner to face-to-face lectures, teaching style and teacher's choices at the rhetorical and discursive levels have a decisive influence on interaction in live online lectures.

Notes

1. EUDICO Linguistic Annotator (<http://www.lat-mpi.eu/tools/elan/>), developed at the Max Planck Institute for Psycholinguistics (MIP) (Nijmegen, The Netherlands).
2. Syllable prominence is marked in bold and capital letters.
3. // indicates that student talk overlaps teacher talk.

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