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Teaching and Learning Methods Section (EMI)

Scaffolding as a Pedagogical Strategy in a Course Delivered Using English as a Medium of Instruction (EMI)

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Abstract

Internationalization has motivated tertiary educational institutions to open their doors to global students and instructors. This movement has led to the adoption of the English language as a lingua franca among many distinct nationalities on the same campus. Consequently, the number of programs using English as a Medium of Instruction (EMI) in their classrooms has steadily grown, raising pedagogical issues associated with dealing with an academic community with diverse characteristics. Accordingly, the goal of this project is to identify and understand how teachers and students deal with the challenge of teaching and learning via EMI, specifically with regard to two issues: the different levels of English language proficiency in the classroom, and any distinct cultural features among participants that might hinder communication during a lesson. Some pedagogical scaffolding strategies such as the use of students' L1, checking comprehension, co-construction of knowledge are identified. To better understand these pedagogical scaffolding strategies in a program using EMI, I present a case study of a postgraduate group and its instructor.

Keywords: internationalization, English as a medium of instruction (EMI), socio-cultural theory of cognitive development, pedagogical strategies, scaffolding

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Following the contemporary movement towards internationalization, in many universities worldwide, English has been adopted as the language of choice in countries where it is not the first language, since English currently functions as a lingua franca of science and business (e.g. Seidlhofer, 2005 Crystal, 2012). Tertiary programs that employ English as a Medium of Instruction (EMI), provide students with opportunities during their regular classes to practice this language while learning the content of a discipline (e.g. Knagg, 2019).

In Brazil, Ramos (2017) mentions that international student partnerships, promoting mobility and visibility, have been frequently part of science policy leaders' discussions and the move towards EMI courses has been implemented as a top-down requirement in most institutions (Ferreira, 2020). In the reality of the classroom, the fact that content is taught in a second language has caused some practical communication difficulties among participating faculty and students.

Such difficulties are commonly associated with the level of the teacher's proficiency in the language of instruction (Knagg, 2019). However, even if the teacher is highly proficient in English, it is not possible to take for granted that a group of students would thereby naturally learn the content of a subject delivered in English. For example, the range of distinct proficiencies in the English language within the same group can be too great to be managed effectively even by an instructor whose own command of the language is high. A degree of linguistic heterogeneity is common in an EMI environment and "relates to apprehensions surrounding inadequacy of English proficiency, by students and lecturer alike, whether real or perceived." (Martinez, 2016, p.4).

Furthermore, Knagg (2019) observes that the same set of instructions would not necessarily be comprehended and followed by students from diverse linguistic and cultural backgrounds. Differing base levels of expectations about typical classroom procedures and the status of instructor and student, for example, could also lead to cultural misunderstanding across different groups even if they share a common language.

In addressing such issues, Macaro (2018) suggests that pedagogical strategies can provide useful tools for students to avoid misunderstandings and make them feel more confident having classes in a language that is not their first one. Knagg (2019) adds that targeted pedagogical support in an EMI environment might be a means to fill a possible gap between proficiency in the language and the delivery

of content in an EMI classroom. Huang (2015) supports this idea, suggesting that "using effective strategies to facilitate comprehension by students with low levels of English would considerably lower their anxiety and inspire in them more confidence and motivation" (Huang, 2015, p.9). There remains the question of what effective, targeted strategies for providing support might be.

Accordingly, the focus of this project is on understanding and then enhancing the pedagogical scaffolding strategies used by instructors and students in an EMI environment. The project addresses both the diversity in English language proficiency in the classroom, and any perceived differences in cultural assumptions that might impede communication during a lesson. A case study of the use of the EMI is presented to elicit insights into the following set of questions:

- How should EMI instructors understand scaffolding strategies, in the age of digital technology?
- What kind of scaffolding strategies are utilized to support students with diverse linguistic competences?
- What kind of scaffolding strategies are utilized to support diverse cultural assumptions, beliefs and attitudes?

The case study describes and evaluates the teaching and learning processes used by a postgraduate group of nine students and a teacher at University of São Paulo (USP), in Brazil. In this group, seven students were Brazilians, one student was from Peru and another one was from Romania. The instructor was from Russia, and for this reason the medium of instruction was largely in English.

Situating its observations in relation to the socio-cultural theory of cognitive development, originated by Lev Vygotsky in the 1920s and 1930s, and developed by generations of successors (Vygotsky, 2012; Lantolf, 2013), the present study considers the interaction among the course participants, that is, the students' interactions with each other and the teacher, to be the relevant element for teaching and learning to take place,. Socio-cultural theorists such as Lantolf (2013) suggest that people cognitively adapt and learn through the influence and support of others. During classroom interactions, a group of participants in programs taught in a second language might cooperate to minimize the differences related to their uneven language proficiency and their distinct cultural and social backgrounds.

The focus of this study is the pedagogical features that the instructor used to assist students in what Vygotskians call their 'Zone of Proximal Development' (ZPD).

Ideally, teaching and learning in an EMI environment should offer diverse students sufficient pedagogical support so that the content of the subject is not compromised. This support, also called "scaffolding," may be evident between the students and the instructor. Wood and Bruner (1976) note that in this kind of supportive pedagogical strategy, the instructor is the more knowledgeable participant who manages the classroom and then, scaffolds knowledge for the benefit of those students who would not be able to figure out the learning points by themselves. Additionally, in some guided interactions during the tasks, students should also be able to scaffold learning for themselves and their peers (Wood & Bruner, 1976).

The Socio-cultural Theory of Cognitive Development: Scaffolding and EMI

As noted above, Vygotsky considered that learners must interact with each other for learning to take place (Lantolf, 2013; Walqui, 2006) as learning is a combination of cognitive development and social practice. By working together, students' cooperative dynamic can provide more opportunities to clarify possible misunderstanding related to both uneven language proficiency and their distinct backgrounds, narrowing the gap between the involved international academic public and the content taught in an EMI environment.

Additionally, Vygotsky's (2012) theory emphasizes the concept of having a more knowledgeable peer or instructor among the group that assists those who fall behind. The cognitive development of weaker learners is mediated by social, collaborative relationships with the more experienced ones in the group (Mcleod, 2022). In an EMI class in which the proficiency of the second language is not even, having the assistance of a more linguistically experienced teacher and/or peer is an advantage.

Furthermore, there is a specific space in which student learning is mediated by a more knowledgeable person so their cognitive development can expand. This space, understood as the Zone of Proximal Development (ZPD), is defined as the gap between what a person can accomplish without anyone's assistance, and what this person can accomplish with the assistance of a more knowledgeable person (Vygotsky, 2012). In the ZPD, the more knowledgeable person gives support to the weaker ones making use of 'scaffolding' strategies. As Walqui (2006) explains, scaffolding is a series of actions by which the environment is prepared so that the students can accomplish a new

task. Scaffolding involves both a supportive structure and active collaboration, with the result that a pedagogical action is the connector between the content and the teaching-and-learning process during a lesson. In this context, scaffolding is employed as a pedagogical strategy that gives opportunities to students to consolidate instruction in the course content. Specifically, in programs using EMI, scaffolding in theory should enable students to acquire disciplinary content without being limited by the unfamiliarity of the language of instruction (Pawan, 2008).

As the metaphor of 'scaffolding' suggests, mediators using it as a pedagogical support expect that such strategies will be gradually withdrawn as learners become more competent. Scaffolding has the essential feature of being a temporary strategy; there is an expectation that students must progressively become autonomous during the teaching and learning process.

The scaffolding strategies described in the following sections form the basis of my own observations of the EMI course delivered at USP.

Scaffolding and the Use of L1

The first issue to be considered is the use of the students' L1 in the EMI classroom. In the Zone of Proximal Development (ZPD), according to Vygotsky, the learners' current knowledge and skills as the base for the acquisition of new knowledge (Harland, 2003). The use of students' L1 can thus be a profitable scaffolding resource for students with limited linguistic proficiency in English (Swain & Lapkin, 2013). Cenoz and Gorter (2021) also agree that students' previous experiences in their first language are valid resources that can be used in a multilingual class. They expand the idea of pedagogical translanguaging as a form of scaffolding that develops students' skills and methods that give them the possibility of using their resources as multilingual learners. According to Creese and Blackledge (2010), pedagogical translanguaging negotiates meaning through language(s), expanding inclusion by promoting more participation by L2 students. It promotes informal relationships between teachers and students, opening more space for communication during a lesson (Creese & Blackledge, 2010). In my classroom observations, therefore, I paid due attention to the mixing of codes in what was ostensibly an EMI context.

Scaffolding in Problem-based Activities

Another noteworthy feature of scaffolding as a pedagogical strategy in the EMI environment is related to problem-based activities. The teacher can assign a prob-

lem to which the students must give a solution. Such activities may involve students working on proposals to address real-world issues developing solutions that draw upon concepts and knowledge studied during the lessons (Xun & Land, 2004). Harland (2003) affirms that learners bring to problem-solving their former experiences; thus, there is a renovation of knowledge that also increases motivation, an important feature that creates the optimum conditions for learning to happen (Harland, 2003). In programs employing EMI, the number of diverse experiences can be greater than in a non-EMI class in which participants might only be able to draw on a narrower range of distinct personal histories. Moreover, by promoting collaborative discussions during a problem-based activity, the possibilities of having students clarify possible misconceptions with more experienced ones in the group are higher.

Scaffolding and Making Mistakes

Through the process of using scaffolding as a pedagogical tool, teachers must consider students' mistakes as part of an inevitable process of knowledge building. Wass, Harland and Mercer (2011) observe that, by solving problems and making mistakes, students realize that knowledge can be developed through their own process of trial and error. Therefore, to provide scaffolding in such an EMI environment, it is essential that teachers are non-judgmental about errors (Harland, 2003). Harland further extends this idea by stating that this freedom to make mistakes without being criticized promotes autonomy and gives the students more opportunity to develop critical thinking and commitment to their own acquisition of knowledge. Any observation of an EMI classroom should therefore attend to the ways in which the instructor deals with student errors.

Scaffolding and Students' Autonomy

Scaffolding, as mentioned above, should not last forever. Therefore, when students demonstrate autonomy in the learning process it indicates that the goal of such assistance has been achieved. Being autonomous means being self-reliant, being empowered to develop their own understanding (Bonnet & Cuypers, 2003). Autonomous students can spot the main problems and expectations in a debate, notice relevant connections, make correct deductions from data, assess whether evidence coming from given information is reliable, and evaluate the validity of data or expert views (Wass, Harland & Mercer, 2011).

This brief review of the pedagogical literature on scaffolding has identified points of interest that should inform classroom

observation, such as the use of students' L1, the ways in which students solve problems assigned by the instructor, how errors are dealt with, and the creation of student autonomy. These strategies formed the basis of my own systematic observation and analysis of the case study.

The EMI Context

At the Universidade de São Paulo (USP) in Brazil, I began, with informed consent and permission, collecting data from a group of nine postgraduate students and their instructor of a course entitled "Political Networks: Public Policies and Contemporary Governance". Seven of the students were Portuguese-speaking Brazilians. One student was from Peru with Spanish as the L1, and another international student was from Romania. The teacher was Russian and the lingua franca during the lessons was English.

My observations were made over a total of nine classes during the first semester of 2023. In addition, data was also collected on the students' academic profile and a Likert questionnaire (1-6) was administered that examined students' level of agreement to given statements (see Appendix 1). There was also an interview with the teacher covering four specific themes (see Appendix 2).

Findings

EMI and the Languages Spoken in Class

According to the students' response to the questionnaire (Appendix 1), most of the nine students voluntarily enrolled in this discipline. Six of them strongly agreed that the EMI program would strengthen their professional knowledge. However, when asked about whether it had in fact strengthened their English language ability, five of them agreed and four students disagreed with the proposition that it had. Nevertheless, seven students strongly agreed that the course represented an opportunity to interact in English with others from different language backgrounds.

The instructor made it very clear that the students should not feel intimidated by the language if they needed to ask anything or make comments on what was presented. In his own words: "this is not an English class; please, feel free to ask me anything you want and don´t worry about making English mistakes". However, the instructor, in his interview with me, also admitted that he did pay attention to the students' level of knowledge of the language to check if they could understand what he was saying in English. The instructor would constantly check students' understanding of concepts by asking them to compare or to give examples, for instance.

From my notes, the Brazilian students would speak in Portuguese when talking to each other and during the group assignments. The only times in which they would discuss matters in English was when the Romanian student was part of the group. Indeed, the instructor remarked during the interview that the Brazilian students, being almost all locals, were constantly communicating with each other in their own first language, Portuguese.

In the interview, the instructor stated that his intention was to convey disciplinary understanding of the network approach, network analysis and so on. He was not worried about the language spoken in class. Still, the instructor said that "very often I like to listen to what they are discussing, maybe sometimes to give them some hints and so on. But actually, this time, no. It was not a problem for me, it wasn't a big issue". According to him, in a postgraduate group they should have the autonomy to work in the way they believed to be best for them; effectively, they could choose to use Portuguese if they felt it was beneficial.

In addition, the instructor revealed that teaching and learning students a subject in a language that is not their first one required him to be more "straightforward" when expressing himself than if the course were taught in Russian. For example, he mentioned that it was challenging to make jokes or use creative metaphors in a second language. He said that, "surely, I am a much better teacher speaking in Russian because I am a very sarcastic teacher in my comments", referring to the difficulty of being "natural" and "authentic" in his L2, adding that it was a challenge for him to keep improving his English to become a better teacher with no language constraints.

In short, then, in the EMI there was evidence of considerable student translanguaging, and the instructor acknowledged and permitted code-shifting amongst the students. In Vygotskian terms, the instructor acknowledged that knowledge might emerge from students drawing on L1 as well as L2 resources, while in the ZPD. The instructor also admitted that being restricted to the L2 as a teacher necessitated a change in his own persona.

EMI and the Content of the Discipline

A factor in the delivery of EMI programs is student worry that their English proficiency is not at a level high enough to follow the course. In the questionnaire, four of the nine students strongly disagreed with the statement that their low English proficiency might be a major obstacle in following the lessons in this course, and they believed that their level of English did not hinder their learning of the spe-

cific content of the course. Seven of the students asked each other for help when facing language difficulties throughout the course, and eight of them disagreed with the proposition that their classmates' competent performance might make them more nervous.

In the interview, the instructor mentioned that he did not feel the need to adapt his teaching strategies to deliver the content in English. He added that, in Brazil, his strategy to teach the content of the discipline was the same, that is, he was unconcerned with the students' proficiency in their second language because he believed it was not his role to be concerned with it. He did not see himself as a *de facto* English instructor.

From my notes, there were instances of students having some inaccurate or unsatisfactory responses when asked in English about the content taught. On some occasions, after being asked a question, students would give the wrong answer or not give any answer at all. To deal with these situations and to make sure that students were assimilating the content, the instructor would challenge them by asking to relate the core concepts to the immediate, Brazilian culture of the majority of the students, besides drawing on his own Russian background and expertise to illustrate some of the concepts studied. By exploring both Russian and Brazilian cultural contexts during the lessons, the instructor could make himself clear and therefore, check students' comprehension of the content despite the cultural differences.

By being asked to apply a new concept to a familiar, Brazilian context, students were better able to analyze, to relate, to demonstrate, to organize and finally, to understand what had been presented to them. Therefore, to make sure students were following the explanation of the content taught, the instructor would constantly ask students some questions, confirming that he must make a considerable effort to constantly check if students were properly following the content taught.

Accordingly, one of the instructor's favorite strategies to know if students were grasping what was being explained to them was to have lessons that he himself described as being "full of spinning". A lesson "full of spinning" is one in which the instructor asks unpredictable questions to continually change the direction of the discussion. The new directions would take students by surprise and make them aware of different approaches related to the subject. These unexpected questions would be contrasted with the content taught before, demanding students to reason better because they had to consider a different perspective on the subject being taught.

The instructor also asserted that he likes the technique of "failure". This concept-checking technique consists of students learning by making mistakes through the process of getting the right answer to a given question. This strategy predicts that students will inevitably make many mistakes while heading in the right direction until they can finally find the desired answer. During the process, they can figure out the answer for the exercise together, step by step. Afterwards, students discern their answers by reflecting, analyzing, and discussing the reasons for every right or wrong possibility. The instructor stated his belief that this technique can make students understand better many concepts of the content presented during the lessons because they will be motivated to figure out the reasons they could not get the assignment right at the first attempt.

EMI and Teaching and Learning Strategies

Regarding the students' learning strategies, from the questionnaire data, eight of the nine students agreed that translating from English to Portuguese during the class was helpful for them. Most of them found it useful consulting online resources such as Google Translate, Google Search, or online dictionaries among others. Five of them strongly agreed that being prepared for the class by reading the materials that the instructor had made available was another important strategy used during the course. Seven of the students reported reviewing the class materials after class, on the virtual learning environment, Moodle, when they had not understood the content during the class. Asking the instructor to explain concepts in other words during class, to clarify some unclear points was also relevant for this group. Finally, six students strongly agreed that PowerPoint slides helped them better understand the lecture presentations.

To the question related to encouraging or recommending online resources to support students' English skills, the instructor responded that he didn't mention any of them because such recommendations were not relevant for this specific group. From my notes, eight of the nine students would regularly make use of their laptops instead of a paper notebook to write their notes. With respect to electronic resources, the instructor's main concern was to assist students with the identification and use of digital materials that could help them better understand the content. I observed and noted down that the instructor would regularly use images and videos from digital platforms such as YouTube and Google to better illustrate some historical context of the lessons. The course took place before the advent of AI tools such as ChatGPT

and DeepSeek impacted student learning; however, as we shall see, certain pedagogical strategies observed in the class are relevant to the use of such forms of digital support.

There were a couple of classes happening at the computer laboratory, in which the instructor presented a program called Pajek, used for the visualization of network data. He asked the students to put some data in this program that would illustrate research results. Students were expected to learn how to manage this digital program of data analysis by making use of the data from their own projects. During these classes, students would routinely ask for each other's assistance and, when they could not figure out how to manage their data by themselves, they would ask for the instructor's assistance. Because the data analysis was specific to the students' own project, they were very motivated to understand and learn how to use the data analysis program for their own research. By the end of this class, there were many students giving and receiving assistance from each other, besides the teacher giving feedback on their results.

During the interview, the instructor also talked about the use of the whiteboard as a technique to co-construct knowledge together with the students. He mentioned that the outcomes of the whiteboard activity may differ from class to class even after presenting the same PowerPoint images. He continued saying that "I like it because they create this knowledge and help me to put things on the board because we discussed it, and they remember this much better than if they had just looked at the PowerPoint". When the instructor considered that the content presented was too complex to be displayed on the board and needed more attention, he made some handouts of the content so that the students could have their own individual reference sources and be better assisted when making some analysis or comparisons during the class.

It will be evident from the observations, questionnaire and interview data that the instructor, then, had a very explicit Vygotskian approach to teaching and learning. He encouraged peer scaffolding and also prompted the students to internalize knowledge through activities in which he acted as the guide and mentor, without necessarily determining the outcome. And as they actively learned their course content and associated skills, the students drew on and extended their linguistic resources in English, and, depending on their linguistic background, in Portuguese as well.

A potential issue raised during the instructor's interview was about students coming up with a question and that he

would not be able to immediately figure out the best way to explain it in English. He commented on this issue:

> In my experience, I've never had a fear of saying "I don't know the answer to the question student has." For some professors this is a problem, like, to say, the professor cannot answer the question, or they think that this is a very bad thing for their status. For me, I always speak that, ok, if they have a question, I cannot answer this question now. But let's think about this to the next class. I think this technique may work, even if we have some misunderstanding in communication.

Effective teaching in English involves, then, the instructors having enough confidence in their own status and competence to admit to students that they do not have an immediate response to a question but will try to reflect and find an answer in a future lesson. This has implications for a teacher's presentation of his or her professional identity to the students; instructors cannot necessarily present themselves as gurus who have an immediate answer to any question, and students should not expect their teachers to be able to express themselves spontaneously on any given topic in the language of instruction.

The instructor's assessment procedure included four features: students' participation in discussion activities during the classes; choosing, connecting and presenting the material worked on in class with their own research projects; presenting their own project to the class and, finally, completing a formal test with multiple choice and written answers to be handed in after the course had finished. These assessments made diverse demands on the students' language competence – they were not assessed purely on one skill alone (i.e. reading, writing, listening or speaking). All their English language skills were engaged in the assessment procedures.

EMI and Participants' Language Achievement

Regarding their learning achievement, most of the students self-reported that having a class using EMI helped them to improve their English language skills. The degree of agreement on this was high. Six of the nine students strongly agreed that it helped improve their writing skills in English. Seven students also strongly agreed that their ability to speak and listen in English was improved. Regarding their exposure to authentic research literature and learning materials in English, seven students strongly agreed that these experiences were very relevant to their academic development. Interacting in English with

classmates and the teacher was a very positive feature for seven of the students, and eight of them recognized that delivering this discipline through EMI was very helpful for them.

In the interview, while mentioning the advantages of taking a program in the English language, the instructor said:

> Of course, for sure there are two basic things here: the first one is that here, English was the only… it is a necessity. The second, of course, especially for the Master or PhD students, they want to continue the career, continue their studies, international institutions, somewhere abroad and so on, and of course, this is a good opportunity to start here in an environment that is Brazilian for them, it is like their native environment, comfortable environment, to start to dive into English classes here and them probably it will be much easier for them to start abroad or to develop their career globally.

Summing up this section as a whole, I have described means of scaffolding in an EMI setting related to: students and the instructor's use of the L1 and its effects; the presence of digital technology; the importance of checking comprehension of content given in a second language; the role of building students' autonomy during the classes; the effectiveness of contextualizing content to be better understood and expanded; the choice of working on a co-construction of knowledge; and the advantages of programs related to EMI for tertiary students.

Discussion

It is clear from the previous section that the students' main motivation when applying to take a course delivered in the English language was to improve their knowledge of the content of the subject; they did not primarily have a desire to strengthen their English language skills. Nevertheless, the opportunity to interact with students with different linguistic and cultural backgrounds was very highly rated, even though, in class, the Brazilian students would constantly speak in Portuguese among themselves during most of the group assignments. One obvious reason for this behavior is the fact that this group had a high number of local Brazilian students. Therefore, this discouraged them from making an extra effort to speak in English with their colleagues. The fact that most of the students were not taking this course for the sake of improving their English skills might also have had an influence on their choice not to speak in English all the time. However, because most of students chose

to discuss matters in Portuguese during the group's assignments, the instructor was prevented from contributing to the discussion with his own comments. The instructor could not understand what students were discussing and, naturally, did not intervene in the group's assignments. In a program in which exchanging ideas among its participants plays an important role, not speaking the lingua franca of the class all the time represents a missed opportunity for both students and the instructor. On the other hand, the L1 is a scaffolding resource that weaker students might depend upon until they have the confidence and skills to express themselves in English.

Indeed, the instructor justified his position of not requiring students to speak only in English by explaining that, for him, it was more important to leave room for the students to gradually have their freedom to choose what they believed to be more effective for them. Not calling students' attention to the language spoken in class was a way of the instructor respecting and considering students' own language choices. Perhaps this attitude was part of his strategy of getting closer to the students as equal co-constructors of knowledge. The instructor strongly defended the position that in a postgraduate group, students can be considered his colleagues, searching for answers in their own projects.

Either way, the use of students' L1 as a scaffolding strategy, both to develop ideas or to gradually extend their autonomy, showed numerous beneficial features during the course. As advocates of translanguaging affirm, multilingual students can manage their own diverse language skills as a scaffolding source. Therefore, one important scaffolding strategy to deal with the uneven English proficiency was to rely on students' L1 and peers' scaffolding. For instance, it was possible to notice that students would ask their friends for clarification in Portuguese if they had any doubts during the instructor's lectures in English.

In addition to the use of the students' L1 as a scaffolding strategy during the lessons, digital technology was also an important tool that assisted both students and the instructor throughout the program. From this case study, digital technology is one of the most constantly used scaffolding strategies by this group. For example, some videos, the university Moodle platform, emails, laptops and smartphones were much employed throughout the lessons. Still, perhaps because their use was quite common in this classroom, the instructor did not have to specifically orient students towards the use of such digital scaffolding tools. Therefore, during the

interview, when the instructor was asked about giving orientations about the use of digital scaffolding, his answer was that such an introduction was not necessary. However, given the fast-changing nature of digital technology and its affordances, it might nevertheless be argued that students would benefit from additional training in how to use relevant devices, software, chatbots and apps systematically to support their EMI learning.

Another important feature of this case study is that the instructor had a very clear idea that it was not his role to be concerned with the language used during his EMI course. By this, he did not mean that he was not concerned with the students' clear comprehension of the content in such an environment. The instructor considered the difficulties of teaching and learning in a second language to be highly relevant, just as he considered the distinct cultural and social background of the group to be an important factor in their learning. There was a conscious separation between being concerned with teaching the language and recognizing that the students' level of language competence could be a possible constraint.

For example, in this EMI course the students' ZPD could have features of the acquisition of the new content and/or the acquisition of further language exponents or skills. For this reason, as a way of scaffolding knowledge during students' ZPD, the instructor would frequently ask students to contrast, to compare, to analyze, to explain and so on. By constantly interrogating students during his lecture, the instructor could build new knowledge by checking comprehension of the content and, simultaneously, check if the language did not interfere in such process as well.

One of the most regularly used scaffolding strategies employed by the instructor was to relate the students' own familiar context to the new content taught. By including students' familiar experiences with the lesson, the instructor could greatly expand students' own ideas to the discussions. For instance, by asking local students to describe the Brazilian voting system, students were motivated to teach the instructor their own circumstances and compare them to those of their Russian instructor. Likewise, by asking students to work with the data analysis program (Pajek) with information collected from their own research, the instructor considerably stimulated students to try to figure out how to manage such a program. In a class adopting EMI, the fact that the social and cultural characteristics of the participants will be diverse is largely inevitable. Therefore, relevant practices that address these distinct features and integrate them

into learning are very valuable and can be an advantage for any teacher in such a program.

Additionally, the pedagogical scaffolding strategies that the instructor identified as "Spinning", "Failure", and the "Whiteboard" were also designed to check comprehension and to stimulate students to develop more ideas based on the content taught. It is important to observe that for each of these strategies, the instructor would motivate students to create knowledge together with him, besides trying to build an equal relationship in which all the students would contribute to the best way to understand and solve the problems set by an assignment.

Building autonomy was also a strong feature during this EMI program. The instructor never interfered when students asked their colleagues for assistance throughout the lessons and so peer scaffolding was shown to be regularly present in this group. The fact that students had each other's back may also have lessened the pressure of having to rely only on the instructor's explanations and contributed to a constructive learning environment.

Usually, classes would be very dynamic with students being asked to participate in the discussions with questions raised by the instructor. In these moments, students would obviously speak only in English. Even students who did not have a good level of fluency speaking in English would participate in these discussions, which were very exciting moments of the class to observe. The awareness that this course demanded active participation through the presentation of facts and opinions almost certainly pushed students to speak more. But there can be no doubt that being scaffolded by the instructor's strategies and their colleagues support built a safer and more comfortable place that encouraged those with less proficient English to speak out as well.

Regarding the instructor's professional identity, it was shown that this was also influenced by the fact that EMI was used in this class. For instance, telling jokes had been one of the instructor's regular characteristics when he was speaking in his L1. This constructed an identity as a humorous instructor. However, telling jokes in a second language is a much more challenging task. In programs using the EMI, it is common to find teachers speaking in their L2. The instructor interviewed did not have the linguistic capability to develop as humorous a personality in English as he did in Russian. There is a developing research literature on the effect on teacher identity of teaching through EMI (e.g. Martinez, Machado, & Palma, 2021), and this topic merits still further attention. The

constraints of teaching in an L2 can be a hindrance for teachers who are not very comfortable about changing the way they deliver a class in their L1. Fortunately, the instructor in this case study did not mind having to adapt his teaching style to the use of EMI. At the end of the interview, he even mentioned his wish to better adapt himself to the Brazilian context by learning how to speak Portuguese, showing a positive disposition to reshape his own identity in response to new cultural and social experiences. Being open to new possibilities is an important feature for anyone interested in participating in programs related to EMI, whether students or instructors. Having the same set of methods and strategies as the teacher is used to having in a regular classroom is most probably not going to fit into a program applying EMI.

Overall, both students and the instructor considered their EMI course as a first important step toward an international experience abroad. It was a profitable experience for most of the students who could have a realistic idea of the many challenges of having to deal with a course given in a second language. The instructor agreed that this experience of having classes in another language in the students' familiar environment was a very comfortable way of starting an international path on their career.

Conclusion: Scaffolding Revisited

The present case study sought to provide insights into three related questions:

(a) How should EMI instructors understand scaffolding strategies, in the age of digital technology?

(b) What kind of scaffolding strategies are utilized to support students with diverse linguistic competences?

(c) What kind of scaffolding strategies are utilized to support diverse cultural assumptions, beliefs and attitudes?

One important issue that arises from the case study relates to the nature and status of 'scaffolding'. It is clear from the pedagogical literature on Socio-cultural Theory, noted earlier, that scaffolding as a pedagogical tool is clearly defined as a strategy that, eventually, should be discarded. It follows that if students continue to depend on scaffolding beyond the end of their course in the same way as they did at the beginning of the learning process, there is the assumption that the teacher and the students involved have failed in their shared educational endeavor. The case study suggests that certain aspects of the instructor's pedagogical strategies were effective in helping the students cope with the demands of the class; these strategies were also, at least in principle, temporary and contingent on the needs of the mo-

ment. For example, among the successful scaffolding strategies employed by this instructor to support language development and help cope with cultural diversity were:

- *Encouragement of translanguaging:* students were permitted to draw on all their available linguistic competences, particularly in English and Portuguese, on the assumption that their competence in English would thereby increase.
- *Guided problem-solving:* students were tasked with completing real-world tasks under the supervision of the instructor, on the assumption that under such guidance students' confidence and autonomy would thereby increase.
- *Cross-cultural comparison:* the instructor regularly invited comparison between his home culture (Russia) and that of the students (Brazil), increasing the students' cultural knowledge and understanding of cultural relativity, and thereby promoting their flexibility.
- *'Spinning':* by asking unexpected questions and thus changing the mindset of students, the instructor again encouraged students to be flexible in their approach to learning, thus giving them confidence and skills that they could transfer independently to other situations.

In all of these cases, the instructor's scaffolding' supported learning in an EMI context. One resource, however, has been omitted from the list, although it undoubtedly also supports student learning in the ZPD. That resource is digital technology – including online websites, dictionaries, translation software, and so on. This resource was intensively used by students, from the start of the course to the end of it, without the need for the instructor to prompt them, and there is no indication that students would cease to consult such digital resources after the course was over. If a defining characteristic of a scaffolding strategy is that it can be dispensed with, then it follows that digital technology is a different category of resource. It is worth asking whether it would be possible in today's digitally saturated world to take such technology away from the classroom, or indeed from the professional contexts in which graduates will later work. It is evidently already a "natural" part of the academic life inside classrooms and the professional world beyond, and, therefore, it is not a temporary strategy for learning. If we accept that this is indeed the case, should digital technology still be considered a scaffolding tool? I would suggest that it should not. I would suggest that we have effectively become "cyborgs" insofar as we depend on our devices and their

associated software to enhance our ability to navigate through the worlds of language and science. This tendency to enhance our language and other abilities permanently through the use of technology will only increase with the advent of AI chatbots.

Another important matter for policymakers and university support systems to address is related to the instructor's position of not being concerned with teaching the language of instruction, namely English. The instructor claimed to focus solely on disciplinary skills and knowledge. Despite his assertions, evidence from my observations suggests that the instructor in this case study is more concerned with the teaching the second language than he might have realized. Programs related to the EMI are not explicitly shaped to teach the language per se. However, this does not mean that teaching and learning in a second language can be completely neglected. The instructor in the case study showed himself adept at scaffolding his content to enhance his students' English skills even though his primary focus remained on disciplinary knowledge and skill. This is not necessarily a natural talent, and instructors who are new to EMI might be given training to help them address students' language needs, even if they do so indirectly.

Regarding the instructors' identity when teaching in a second language, it was shown that the instructor faced more difficulties teaching in the same way as he was used to when teaching in his L1. While training in EMI delivery might not address techniques by which teachers can transfer aspects of their L1 speaking identity to L2 contexts, the constraints and perhaps frustrations could be acknowledged, and strategies developed whereby teachers might feel more comfortable to locate their new EMI "selves".

Finally, this case study has affirmed that scaffolding can be and evidently is pedagogically used as a strategy in courses using EMI, taking into consideration the students' uneven proficiency of the English language. It is also possible to further promote scaffolding strategies to help participants in a class cope with the diverse academic and cultural background of both students and the teacher. Any case study, of course, is limited in that findings cannot necessarily be generalized to a broader population. Nevertheless, the case study has value in that it has described in some detail what actually happened in a particular university setting when a highly competent and thoughtful educator, partly consciously and partly intuitively, adapted his teaching style to serve the needs of a group of students, all of whom, like the instructor, used English as a second language. What happened can be explained – in part

– as the complex process of scaffolding, the peer and instructor mentoring that was necessary for the students to make sense of the new discipline through the new medium of instruction. And in part it can be explained as the permanent digital enhancement of the students' and instructor's competences, as mediated by new technology. I hope these insights can be helpful in the future pedagogical support of students and instructors who are new to the delivery of courses using English as the medium of instruction, particularly in contexts where the adoption of digital technology is increasingly enhancing learners' basic competence.

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(Appendix 1)

English as Medium of Instruction (EMI) Student's Questionnaire:
Please indicate how much you agree or disagree with the following statements:
1 Strongly agree 2 Agree 3 Agree slightly
4 Disagree slightly 5 Disagree 6 Strongly disagree

□ Learning motivation:

I participate in the EMI course voluntarily: 121111311
I take the EMI course in order to strengthen my professional knowledge: 111211231
I take the EMI course in order to strengthen my English ability: 212514143

I like to interact with students of different nationalities in the EMI course: 211111211

□ Learning anxiety:

The major difficulty I encounter in the EMI courses is my low English proficiency: 413666256

Low English proficiency hinders my learning of professional knowledge in the EMI courses: 412666246

The performance of my classmates makes me nervous: 645666355

I ask my classmates for help when I encounter difficulty in the course taught in English: 212621225

□ Learning strategies:

I find it useful to have student volunteers translating in the classroom: 312323226

I find it useful to consult online resources such as electronic dictionaries during the class: 212233121

PowerPoint slides in English help my understanding of the lecture content: 111251211

I prepare in advance of classes by reading materials, so that I can better understand the instructor: 313131311

I review the class materials on Moodle when I have not understood something in class: 431351311

When I do not understand something, I ask the instructor to explain in other words: 323361311

□ Learning achievement:

I like to interact with my classmates in English: 211111211

I enjoy interacting with the instructor in English: 211111211

The EMI courses help to improve my English writing ability: 112311211

The EMI courses help to improve my English listening and speaking ability: 111311211

The EMI courses help me form the habit of reading authentic research literature and learning materials in English: 111611211

As a whole, the EMI courses are helpful to me: 11131131

(Appendix 2)

Instructor's interview/ questions:

- Have you adapted your teaching style for delivery of classes using EMI in Brazil? If so, how?
- Do you give students materials to prepare for classes in advance? Why? Why not?
- Do you give ppt slides in advance of the class? Why? Why not?
- Do you try to control the amount of text on ppt slides?
- Do you try to use visual (non-textual) means of conveying information?
- Do you give supporting material during class?
- Do you make conscious use of the student volunteers?
- Are you concerned about students' level of English?
- Do you require students to interact in English in groups?
- Do you encourage/recommend any online resources to support students' English skills?
- Is the oral/written assessment in English? Individual? Group?
- Do you believe students doing EMI courses will be better prepared for international presentations/employment?
- Was there any other unexpected challenge?
- Would you give any advice to a colleague who is about to teach in an EMI program in Brazil? Which one(s)?

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