Studying Content in English From School to University: A Transitional Survey of Students' Awareness of Their Pre-acquired Skills and Knowledge

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Abstract

Drawing upon a small sample of qualitative data derived from stimulated recall interviews with first-year Italian undergraduates studying Medicine on a five-year degree course taught via EMI, we report on the techniques employed by these students to facilitate their language and content acquisition. We further investigate their awareness of the added value ascribable to what they had already acquired during their high school CLIL studies in terms of learning strategies, knowledge and competences.

Keywords: EMI, CLIL, Learner strategies, Language learning, Knowledge building

1. Introduction

1.1 Introducing the Study

The current study is a further step in our research on EMI and transitional issues in the Italian educational scenario. The study began in 2016, and different aspects have been reported over the years in previous publications (Macaro et al., 2019; Di Sabato & Macaro eds., 2018; Di Sabato et al., 2024; Macaro et al., forthcoming).

Whereas in their 2024 publication the authors investigated the interactional strategies and question typology adopted by two lecturers during their first-year EMI lessons on a degree course in Medicine in Naples, Italy (Di Sabato et al. 2024), in the current study, the lens is turned around to focus upon the students, with a view to examining the learning strategies and behavioural patterns they adopt when dealing with complex scientific lesson content taught through English, their foreign language.

Enquiring whether and in what manner students exploit their pre-acquired knowledge and learning strategies when attending an EMI University course will hopefully provide relevant information which will serve as a prerequisite to work on transitional issues and prefigure awareness-raising strategies to be developed by high-school teachers.

1.2 Learning Strategy Research

The research and commentary on 'learning strategies' has for many years been associated with the learning of a second (L2) or foreign language (see, for example, Cohen, 1998). Yet even in these early decades of strategy exploration a number of researchers were aware that, though essentially they were referring to L2 learning, it was difficult to separate language from content as this quotation from Chamot (1987, p. 71) suggests: "Learning Strategies are techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic *and content* area information" (our emphasis).

Nonetheless, the transition, for the topic of learning strategies, from the focus being on L2 classrooms to one where academic (sometimes referred to as 'disciplinary') content is, to varying degrees, the prime objective, has not really gathered momentum until relatively recently. This is the case even though content learning through English, in some geographical areas of the world (e.g. Hong Kong, see for example, Fung & Lo, 2023), has been an undeniable feature of both secondary and tertiary phases of education for many decades.

The consistent research interest in the learning strategies used by language students was propelled by the early belief and subsequent evidence that there existed good language learners (Rubin, 1975) and that by documenting their strategies it might be possible to help less successful language learners make greater and faster progress.

The focus of the current research is indeed on the 'techniques, approaches and deliberate actions' taken by students in order to thrive in their disciplinary content learning, when the medium of instruction is English, with the additional perspective of identifying how they maintain, discard or modify their learning approaches and their specific strategies as they transition, in the Italian context, from secondary (high school) education to university.

In this paper we adopt the definition of English Medium Instruction (EMI) as: "The use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language of the majority of the population is not English" (Macaro, 2018, p. 19).

1.3 Research on Learning Strategies in EMI Contexts

EMI classrooms are the archetypal 'language in use' contexts. A great deal of that language in use is experienced and handled through the receptive skills of listening and reading, with the former being operationalised through lectures during which there may be varying degrees of teacher-student interaction. Indeed, there may be some lecture types which are entirely uni-directional (teacher 'lecturing' to the student audience) perhaps merely with some questions at the end. An early study on the perceptions that students have of the lecture experience was carried out by Flowerdew & Miller (1992) in EMI classrooms in Hong Kong. Among the difficulties most cited by students, even in this relatively traditionally well-established EMI context, were the speed of delivery of the lecture, the number of new terms and concepts that they were being confronted with, and the problems they experienced concentrating. In order to counter these difficulties, they adopted strategies such as seeking the help of their fellow students, engaging with relevant reading before and after the lecture, and asking for a tutor to help them. The students particularly noted a stark difference between "the lecture experience and the sort of exposure to English they were used to at school" (Flowerdew & Miller, 1992, p. 16).

It is not surprising therefore that Nair et al. (2014) have proposed, with reference to EMI, that "listening is the most indispensable skill for learning in a university environment" (Nair et al., 2014, p. 475). Their subsequent research, based in Malaysia (with students on a pre-university course), revealed that students attempted to guess a number of unfamiliar words or phrases, and speculated as to the possible answers to questions being posed as well as monitoring their understanding during listening. Other researchers have investigated what we might call the more complex 'strategy clusters' adopted by students in lecture situations. For example, Malavska (2017) sought to elicit note-taking strategies that Latvian students in EMI lectures were adopting. She found that they were experiencing a number of difficulties compared to the process of note-taking in their L1, owing to the fact that they were less able to spot 'logical connectors' (Malavska, 2017, p. 127), as well as those markers in teachers' talk which signalled a transition to another aspect or part of a lecture. The author suggests that a slower speed of delivery might compensate for the fact that the lecture was in their L2 English, allowing for these discourse features to be noticed more easily.

'Self-regulation' is a name given to a concept which has been associated with learning strategies, but it takes a slightly more holistic perspective of what attitudes and behaviours learners adopt during and around the learning process. Self-regulation, as the term implies, is associated with the ability to control and adapt one's behaviour in the learning process. Yuksel et al. (2023) investigated how self-regulation predicted success in EMI university students in Turkey from a number of different disciplines as well as the students' language proficiency. They found that both self-regulation (as well as proficiency) determined success

in STEM subjects such as engineering, where students also seemed to display lower levels of anxiety. However, it did not substantially determine success in social science subjects such as Business Administration and International Relations. This also points to a need, in learning strategy research, to investigate differences among disciplines (see Macaro, forthcoming). In a highly contextualised study of student (trainee) nurses in Saudi Arabia, (Suliman & Tadros, 2011), investigated the concept of self-regulation and learning to 'cope' with the demands of learning a profession through the medium of an L2. Self-regulatory strategies such as 'positive reappraisal' and 'planful problem-solving' together with seeking social support (Suliman & Tadros, 2011, p. 406) were essential coping approaches developed over time.

Research to date has also explored the impact of different learning contexts on strategy use. One of these contexts is quite simply the amount of EMI that learners are engaged with as presented, for example, by partial EMI (where only some lessons are taught through English) and full EMI. Soruç & Griffiths (2018) found differences in strategy use between partial EMI and full EMI, with the latter students appearing to have developed a wider repertoire of strategies (e.g. coming to the class better prepared, reducing their memorization strategies, and being more likely to ask for clarification). However, the researchers observed that differences might also be related to Grade Point Average scores, and to gender. Chou (2018) in Taiwan investigated students' strategy use and related anxiety when speaking in English comparing full and partial EMI contexts focusing on strategies such as 'retrieval' 'rehearsal' and 'communication strategies'. The researcher found that students who were in the partial EMI context were using fewer rehearsal strategies. These included imitating the way more proficient speakers of English spoke and seeking out opportunities to speak to native speakers. The partial EMI students, possibly as a result, demonstrated feelings of anxiety compared to those in full EMI contexts who were receiving greater exposure to the target language.

Strategy use has been shown to change over time as students become more accustomed to the HE EMI environment. This change was identified and documented by Zhou & Thompson (2023) who carried out a longitudinal study of strategies of students at a Chinese university. In the early stages of their programme students tended to deploy a more 'bottom-up' approach by, for example, focusing on short phrases or even individual words. They were also more likely to insist on trying to understand the literal meaning of what the teacher was saying. This shifted over time to an understanding of what the teacher was saying, which was sufficient for their learning purposes. Furthermore, the strategies that they used before the class and after class gradually began to influence their general approach to learning and the specific strategies deployed in class. Once again, the notion of self-regulation featured strongly in this study by for example reducing the amount of note-taking they were carrying out. Zhou & Rose (2021) expanded on this theme by demonstrating that students used a self-regulatory cycle in order to meet the demands of listening in EMI classes and that additionally they carried out learning activities before and after class.

Kirkgöz (2013) conceptualised strategy use in terms of a 'surface learning approach' versus a 'deep-learning approach', where in the latter students attempt to seek their own meaning and thorough understanding, whereas surface learning is more likely characterized by memorization and rote learning and an unquestioning attitude towards the facts presented to

them. In her study of a university in Turkey with students from a variety of disciplines, she found that first year students were more likely to adopt a surface learning approach in order to succeed in the imminent examinations. Final year students adopted both a surface learning and a deeper approach. This suggests that students' strategies once at university can change over time. Put differently, transition from one educational phase may pose a number of difficulties for students because of the new learning environment but, at least for some students, they are able to adapt to that new environment by developing new strategic approaches. However, we should note that Kirkoz's study was cross-sectional, not longitudinal. The current study attempts to provide a picture of strategy development by exploring the developing attitudes, strategies and approaches of a number of students over time.

1.4 The Transition Effect in EMI

In the above section we have briefly examined research which has compared a different EMI delivery system, for example between full and partial EMI in higher education. We now turn to a delivery system which incorporates a transition from high school to university, where the high school experience may or may not have had some element of the content subject being taught through the medium of English. Again, the focus is on the strategic behaviour of students. Once again, the Hong Kong setting has provided a useful and theoretical basis for exploring this area of research by analysing the strategies used by students in secondary EMI classrooms. Fung & Macaro (2021) explored strategy use in relation to (English) linguistic knowledge using a survey instrument in conjunction with tests of Linguistic Knowledge (LK, i.e. vocabulary and grammar). Their research confirmed that students with lower LK used more translation strategies when listening to the teacher whereas those with higher LK were more likely to use a range of strategies. However, a sub-group of lower LK learners did manage to compensate by being highly strategic, suggesting that the relationship between LK and strategy use is not necessarily an immutable one. This hypothesis was additionally confirmed by Fung & Lo (2023) with specific reference to Biology students who demonstrated that deploying a wider range and combination of listening strategies helped overcome the difficulties posed by listening. Thus, and in particular with reference to the research aims of the current study, when considering transition from the secondary to tertiary phases of education, it may be the case that where EMI has featured in the earlier phase, some strategic behaviour will already have been developed, at least in some learners. We can therefore not assume, in terms of transition difficulties, that there is a clear and unequivocal comparison to be made between students who have experienced EMI in secondary and those who have not. There may also be a comparison to be made between those students who have developed their strategic repertoire in EMI secondary and their fellow students who have had the opportunity but have not done so to the same extent. Thus, despite the differences between CLIL and EMI settings, it is possible to study how strategic behaviour in one may influence strategic behaviour in the other. Wilkinson & Gabriëls (2017) investigated the strategies used by undergraduate students in the Netherlands (from a number of national backgrounds) and found that many did have to adapt their learning strategies to the new context with some preferring to read about the topic (or even the lecture itself where available)

before coming to the lecture. In fact, a greater focus on self-study was a feature of some of the respondents' strategic approach.

In terms of aspects of the transition from secondary to tertiary education, the findings to date strongly suggest that students focus much more on content than on language, this being the case whether the earlier phase included a CLIL dimension or not because of the latter dimension's greater focus on language. In a study carried out by the current authors (and others) in Italy (Macaro et al., 2019) the researchers found that the university students' focus was overwhelmingly on content learning. This leads us to an explanation of the context of the current study.

1.5 Context of Study

Before presenting the sample and methodological framework adopted, a brief panorama of some research carried out in the Italian setting of our study will be provided,

In terms of the linguistic challenges of EMI and the hurdles encountered during lectures, students' views in Italy present a variegated picture. The feedback provided in questionnaires and interviews about these courses was generally positive, and effective strategies to improve comprehension were successfully implemented (Ackerley, 2017; Clark, 2017; Costa & Mariotti, 2017). Students, however, often lamented the need for more language support (Ackerley, 2017) and were not always satisfied with the language proficiency of their lecturers (Costa & Mariotti, 2017). Ackerley (2017) identifies the need to become acquainted with specialised terminology as one of the main drivers of strategic moves. Her questionnaire-based study carried out at the University of Padua and involving 111 students enrolled in Master's level courses covering different disciplinary areas, revealed that the underlying fear of students was to encounter comprehension difficulties due to a lack of specialist terminology, a difficulty in understanding more complex concepts or simply an insufficient level of competence of English. In a study carried out by Rowland & Murray (2020), a number of students reported that they used their L1 in order to attempt to further or facilitate their understanding of complex concepts, a strategy which, according to their teachers, must surely have increased their cognitive load. Moreover, they sometimes resorted to recording and subsequently listening to their lectures several times. Most students, however, claimed that their language proficiency grew as the course progressed, and both weak and strong students stated that their comprehension improved considerably if they possessed some background knowledge of a subject, although it also grew as they progressively became acquainted with specialised terminology and with the speech and lecture style of the various teachers. The students also deemed that classroom aids such as lecturers' slides and handouts were conducive to bolstering comprehension and all, irrespective of language skills, felt the need for greater language support. In a further questionnaire-based study carried out in the Italian context, Clark (2017) reports that students find that lecturers' paralinguistic strategies can contribute to improved comprehension. Indeed, she asked 46 students enrolled in a postgraduate course at the Department of Political and Juridical Sciences and International Relations at the University of Padua to specify which of the lecturers' language abilities (grammar, vocabulary, pronunciation or fluency) was

essential for the delivery of a 'good' lecture. Most students opted for 'fluency', as they claimed that the ability to speak in an uninterrupted manner, providing complete information units vastly assisted their comprehension, and that pronunciation, use of vocabulary, and grammar were all of lesser importance.

Pursuing this brief overview of the pros and cons of EMI lectures in the Italian context, an investigation carried out by Costa & Mariotti (2017) at a northern Italian university revealed that the 160 students attending EMI courses in Economics and Engineering felt that their comprehension greatly benefited from the concentration and focus required by the use of an L2 considered more concise and direct than their L1, by the slower pace of the lecture itself, and by the fact that hands-on class activities were also provided. On the downside, however, the students also perceived that some of the disciplinary content was lost in English and that their language skills, especially pronunciation, did not benefit from attending the EMI course. The latter complaint may also be linked to their criticism regarding the English competence of lecturers.

In their 2021 study, Costa & Mariotti (2021, p. 83) go on to outline a tie-in between lecturers and students' exigencies: "what lecturers consider useful is held to be equally useful by students". Indeed, among the input presentation strategies they selected for their survey, the most appreciated ones are the use of examples, the use of questions, the marking of content units with intonation, the use of definitions and the ability to summarise, signpost and repeat. The authors also quote the detailed work carried out by Molino (2015) who studied the use of a number of question devices (formulaic nominal constructions, elliptical questions, discourse markers), all serving an important interpersonal function in language, in the lectures of non-native speaker lecturers working in the field of Physical Sciences and Engineering at the University of Turin, and in those of native speaker lecturers taken from the Michigan Corpus of Spoken Academic English (MICASE). Her results reveal that such comprehension strategies were rarely employed by either category for fear of interrupting the lecture. In a later work, Molino (2017) returned to the same EMI corpus to monitor to what extent repetition and rephrasing could impact upon the learning of disciplinary contents. Her study revealed that the lecturers produced a greater number of repeats (the repetition of single words or short sequences) than would be common in native-speaker English.

We hope this, albeit limited, account of the extensive research on EMI carried out in the Italian academic context may allow the non-Italian reader to appreciate the considerable interest for this methodology on behalf of researchers. The main objective is, as always, to identify the attitudes, habits, and objectives of both teachers and students, with an aim to updating and improving the methodological tools available.

One last look at the Italian scenario is required to provide an account of the attention devoted to transition from school CLIL to University EMI in Italy. Imparting details of both realities is beyond the scope of this study, however, while directing the reader towards the previously mentioned publications, we cannot but emphasise the peculiarity of the Italian school system which enforces compulsory CLIL in the last years of secondary school (CLIL was institutionalized by the so-called 'Gelmini Reform' in 2010 and therefore made curricular).

Compliance with the European scenario and with the increase in tertiary EMI to favour internationalisation, makes Italy a perfect testing ground to investigate transitional dynamics from school to university. Despite this, studies of this kind are relatively rare and apart from the research carried out by the current authors (Macaro et al. in 2019), Guarda (2022) is the only other scholar to have dealt with such issues. She argues that although compulsory CLIL classes at secondary school doubtless help students to overcome the cognitive challenges inherent to their curriculum, they do not provide support when it comes to the move to tertiary EMI. Guarda (2022) further claims that by implementing a number of preparatory practices in CLIL settings (greater focus on new concepts and terminology, focus on keywords and extensive reading of pre-class materials), students may gain greater awareness of their deficiencies and better prepare for the transition towards tertiary EMI.

Macaro et al. (2019) also investigated the strategies that students at an Italian university deployed to foster their understanding of EMI lectures. It emerged that most of the strategic behaviour was carried out 'during the lesson' and consisted primarily of note-taking. The uni-directional/non-interactional nature of Italian university lectures may provide a valid explanation for this finding. The students also stated that they rarely carried out pre-lesson activities to better prepare for their lectures. Finally, a paragraph is devoted to Italy, against an international backdrop (Macaro et al. forthcoming). We firmly believe that such studies devoted to transitional issues should serve as a starting point for educational stakeholders to develop key objectives in terms of strategic competences across the curriculum.

The research question we wish to address in this study is: To what extent and in what way do students exploit their pre-acquired knowledge and learning strategies when attending an EMI undergraduate course in medicine?

The results of this investigation will serve as a prerequisite to work on transitional issues and prefigure awareness-raising strategies to be developed by high-school teachers.

2. Method

2.1 The Research: Method and Sample

On the basis of the research carried out at both an international and local level and reported upon in the previous sections, we conducted a small-scale study on CLIL/EMI transitional issues.

The lessons on which the current research is based were recorded at the Faculty of Medicine in a southern Italian university which is also a teaching hospital. The EMI degree course in 'Medicine and Surgery' is taught alongside the regular Italian language degree course in Medicina e Chirurgia. Both degree courses are analogous in terms of their five-year duration, course content, venues and, in the main, teaching staff. They differ, however, in two fundamental aspects: the language and the number of attending students. Whereas the regular Italian degree course admits approximately 500 students per year, the parallel EMI course enrols only 25 students per annum. The link https://www.unina.it/-/12778375-medicine-and-surgery currently provides information about the syllabus, course content and tuition details.

Both Chemistry and Propaedeutic Biochemistry and Physics in Medicine are taught in the first year of the English-language five-year degree in Medicine. The students who attend the EMI course are in the main foreign (French, Turkish, Greek, Afghan, Chinese, and Spanish). The number of native Italian-speaking students has however increased in the last two years, and they now make up approximately 40% of the 25/27 students who enrol on the course each year.

The lessons in Chemistry and Physics are held in a large amphitheatre-shaped room in which the 25 attendees appear to cluster either in the front two rows or in the very top three rows. More details about seating arrangements will be provided, as the choice of where to sit may be strategic for the students with regard to clarity of vision and hearing and consequently greater focus on lesson content. The professors stand in the 'well' part of the amphitheatre, quite far-removed from their students, even those in the front rows. On the wall behind the desk, there is a large screen upon which they project PowerPoint presentations and, behind the screen, a three-panelled blackboard on which they illustrate calculations and formulas when necessary. The acoustics in the room are good and the professors do not use a microphone.

The 13 students whose learning strategies we investigated in this study were all aged between 19 and 22. In terms of gender there were 7 males and 6 females all of whom were enrolled on the Medicine and Surgery EMI degree course and who volunteered to participate in the stimulated recall interviews (SRIs). Volunteering to take part in the project was in fact quite time and energy consuming as besides the SRIs they also had to respond to a lengthy questionnaire designed to gauge the breadth and depth of their vocabulary knowledge. Although they were offered the opportunity to carry out the SRIs in English or Italian, the students specifically asked for them to be conducted in English as they felt this would give them the opportunity to use/practise their language especially, as many of them stated, because the interviewer was a native English speaker. The SRI session began with coffee and relaxed conversation in the student bar before moving into a quiet, secluded room to conduct the interviews.

In order to carry out research on the learning strategies implemented by the students, four lessons were recorded, each approximately two hours in length. Two of the lessons were in the field of chemistry and propaedeutic human biochemistry ('The colligative properties of solutions' and 'Osmotic pressure') the other two were in the field of physics ('Laplace's Law' and 'Viscosity and Velocity'). Significant excerpts from the lectures were then used in the stimulated recall interviews.

Although this data collection procedure is now fairly commonplace, in educational settings Stimulated Recall Interviews are often employed as a qualitative tool to investigate the effects of instructional strategies from a retrospective, more metacognitive viewpoint (Gass & Mackay, 2000). By means of recorded stimuli (in this specific case the extracts from the previously attended lectures), participants are encouraged to relive the experience from 'the outside looking in', while attempting to recall their mental and physical reactions to what the lecturers were saying and doing. Although the time lapse between the instructional event and

the interview is always as brief as possible, the distance created obliges participants to observe their behaviour at a remove and to remember the various strategies, moves and actions they were calling into play while attending the lecture.

2.2 The Interview

The individual SRIs all followed the pattern outlined below: an initial welcome and introduction session in which the interviewer introduced herself, obtained written consent from the students, and outlined the general aims of the research project. This was then followed by a number of warm up questions:

1. How long have you been learning English?

2. Did you have a CLIL experience at high school?

3. Have you studied English outside the school/university context?

4. What kind of informal contact have you had with English?

5. Why did you choose this university course?

6. What are the main differences between high school and university in terms of English?

7. What is the biggest challenge involved in attending courses (and doing exams) in English at university?

The SRI procedure was then explained and each selected segment was played twice accompanied by a sequence of reiterated instructions and questions:

I am going to play two segments from your lectures with Prof xxxxxxxx / Prof xxxxxxx just listen and recall the lecture.

8. Can you tell me what you were doing during the lecture? Can you remember where you were sitting?

9. Did you do anything special to help you listen or understand what Professor xxxxx was saying?

10. Was everything clear or were there parts you didn't understand? When you didn't understand, what did you do?

11. What do you do when there is a word or phrase that you don't understand?

12. Is there anything about your university courses taught in English that you would change?

The interview was then brought to a close with a few awareness raising questions addressed specifically to the CLIL + EMI students to enable them to focus on the different strategies adopted in the two educational contexts:

13. Can you recall any of the techniques you adopted to facilitate your learning experience in the CLIL classes at school?

14. Are you still adopting the same strategies now at university?

15. If you have modified your previous strategies/adopted new strategies, in what way have you done so?

2.3 Procedure

As illustrated in the previously outlined interview framework, the stimulated recall interviews included video observation of brief excerpts from the two lectures the students had attended. It was essential that the interviews took place immediately after said lectures for several key reasons: the students' memories were fresher and more accurate shortly after the event; as time passes, details may become less clear or be forgotten, leading to less reliable recall of specific instances of the language use and teaching strategies implemented. Conducting the interview straight after the lecture also allowed participants to contextualize their actions and decisions more effectively. They could better remember why they behaved or responded in specific ways, which is again crucial for understanding the rationale behind their behaviour. Finally, the closer the interview to the actual event, the less likely it was that external influences (e.g. other lectures, interactions, or classroom experiences) would alter the participants' perceptions and recollections. This helped considerably in maintaining the focus on the specific excerpt(s) being analysed.

Overall, the immediacy of the interview helped to ensure that the data collected was as accurate, detailed, and reflective of the actual lecture as possible. This was considered essential for the validity and reliability of the current research.

Returning now to the learning strategies implemented by the students, we drew up a grid in which we listed the most common techniques that had been adopted in the CLIL and EMI settings on the basis of the previously illustrated studies. This allowed for a quantitative overview of the commonalities and discrepancies between the two contexts, and further brought to light some features common to the entire class in each of the settings under investigation.

The strategies we selected for the grid were: note taking; making use of visual aids to better understand/reinforce lesson content; asking for repetitions and extra explanations especially as regards technical/domain specific terminology; using context to infer the meaning of a word; focusing on gist rather than single terms or concepts; using translation tools; taking notes in English; underlining key terms and phrases in their notes (to return to them after the lesson); asking for the translation of more complex terms; searching the web for extra information; recalling prior knowledge on a topic.

The fact that the SRIs included open-ended questions (13 - 15) means that the students did not always reply in a clear and exhaustive manner. They often listed a number of strategies but then went on to discuss tangential details, possibly omitting strategies and other aspects which may have contributed to the number of recorded learning techniques. The positive side of this popular interview technique is that the close reading of the students' responses allowed us to move on to a qualitative analysis of the dataset.

3. Findings

Not all the learning strategies selected for the grid were mentioned in the interviews. In terms of percentages, the learning strategies implemented (as declared by the student sample) during the EMI lectures are as follows:

Table 1. Learning strategies implemented throughout EMI lectures

Focusing on the understanding of specific technical/specialised terms: 90%
Taking notes in English: 80%
Concentrating individually (without peer consultation) on salient points in the lecture: 80%
Having recourse to Italian (for explanations or more in-depth comprehension): 50%
Asking for repetition: 40%
Inferring unknown words from context: 30%
Having recourse to extra tools (web, online dictionaries): 20%

When observing the students' answers to question n.9, we found responses such as: "Probably ask, also because he's also an Italian teacher and hmm…I could probably ask maybe, 'Sorry, what does it mean in Italian, this word?'"(Marco) (Note 1); "I just raise my hand and say 'professor can you explain it again?'"(Caterina); "Well, first I try to understand from the context, and then I look up the slide or try to pay attention if the professor repeats it one or two times" (Tia).

In terms of the difficulties reported by the students, none of them pertained to a low or insufficient level of their own English language proficiency. Rather they were all related to extra-linguistic issues such as the teacher's low voice or impenetrable pronunciation or to content issues, as listed above, such as the complex meaning of specific technical/specialised terms.

When discussing their language competence, the students all declared that they possessed an above-average knowledge of the language due to, in the main, extracurricular activities: private lessons with mother tongue speakers, language certification courses, period of study abroad and extensive use of social media and online viewing platforms. As Marco explained: "My parents sent me to a private English school in Boscoreale near Naples. It is called the British school and it helped me a lot because public education doesn't give you the possibility to fully understand English and even to practise it because obviously the professors were not mother tongue speakers, so they just explained grammar rules in Italian". As for social media and online viewing, Marta added: "my teachers weren't the best, I have to say, in fact, most of the English I've learnt in high school was thanks to the Internet and lots of films, a lot of

movies and videos on Internet, YouTube, I also used to read a lot of stuff in English on the Internet, so basically most of my knowledge comes from Internet".

Although in this study we focus on strategies that are in the main implemented during the lesson/lecture, the students did occasionally mention "previewing activities" (Zhou & Rose 2021) such as "looking for information about the assigned topic in Italian" (10%) or "attending the lesson in English after attending it in Italian" (10%) or again "printing out the slides before the lesson" (20%); and in terms of post-lesson or "confirmatory activities" (Zhou & Rose 2021), several of them also mentioned "looking for the translation of unknown words after the lesson" (40%) or "revising content and slides after the lecture" (60%).

The grid provided us with a quantitative scenario which foregrounded recurring strategies and, more interestingly, instantiated those CLIL practices which tend to be abandoned in an EMI context (Table 2):

Table 2. Abandoned CLIL practices

Studying lesson content in groups: 80%
Consulting online resources: 60%
Summarising/paraphrasing: 30%
Drawing up concept maps: 30%
Pre-lesson reading tasks: 20%
Drawing up bilingual glossaries: 20%

When responding to interview question n.13 "Can you recall any of the techniques you adopted to facilitate your learning experience in the CLIL classes at school?", the students stated:

- I used information in Italian about an assigned topic to better understand the topic. Studying in groups was more fun (Carlo);

- We also did a lot of collaborative tasks like comparing our summaries of English reading passages, looking up terms on the web, and we learnt to ask each other questions and listen carefully to the answers (Caterina);

- We learnt to build an alphabetical index of the new terms that we learnt with the translation in Italian and the phonetic transcription. We had to do short presentations, so we learnt how to transform concepts into graphs and diagrams to make the information more accessible (Enzo).

Furthermore, in response to question n.14 "Are you still adopting the same strategies now at university?", the replies were negative apart from two students who replied:

- I still summarise the lesson content when I get home to make it easier to remember (Tia);

- To better understand the lesson content, I consult online resources in Italian. I also did that at school (Carlo).

However, when they were asked "If you have modified your previous strategies/adopted new strategies, in what way have you done so?" (question n.15), the students were unable to answer and visibly felt that the two learning environments were completely separate.

A close reading of the interview results revealed some pertinent although less statistically relevant data which, in our opinion, better explain this quantitative scenario and contribute to the final discussion and conclusion.

An initial aspect concerns the seating position selected in the classroom (question n.8). Each student justified his/her choice in a different manner. For example:

- I sit in the third row, third from the right, I always sit between my friends. It is a good position because I can see and hear the professor well (Marta);

- I sit close to the blackboard and the teacher for better listening (Marco);

- I sit in the second row so as to be quite close to the professor to be more concentrated without being distracted by other things (Enzo).

The students also commented upon the fact that the Latin/Greek origin of many of the specialised terms introduced in EMI served to facilitate comprehension at word level. However, they further stated that comprehension does not lie at the morphological level but rather in the meaning of the term. What appears to emerge is an awareness of the 'transparent' equivalent in the L1 (typical of hard sciences/STEM subjects): "Specific words are not a problem because they are similar between English and Italian, and I already know their meaning. The problem lies with new words, whatever the language" (Paola).

In their SRIs, almost half of the students stated that they asked the teachers to repeat words and explanations during the lesson, however, when the authors revisited their previous findings (Di Sabato et al. 2024) they found that the video recordings revealed very little interaction.

When listing their reasons for choosing the EMI study curriculum, students mentioned: love for English: "English has always been my passion" (Marco) - professional opportunities abroad: "I know this course in English will open professional doors in many other countries" (Paola) - small classes and greater focus: "I started the Italian course for just one month, but we were 400 people and I don't know, there wasn't a direct contact with the professor and for example, it was difficult to even communicate with other people because we were too much. Instead, in the course of English, we are just twenty people, so it was one of the reasons why I chose the course in English because of the fact that you could have a greater touch with the professor and at the same time you could learn in a more direct way" (Carlo).

4. Discussion and Concluding Remarks

4.1 Discussion of Findings

We started from a theoretical background and from our previous research to analyse the corpus of recorded interviews with the aim of finding appropriate responses to the RQ. The analysis of the collected data appears to confirm that secondary CLIL and tertiary EMI can each benefit from a transitional curriculum design across the two educational contexts.

Among the CLIL teaching methodologies which need to be incorporated into EMI, we claim that forms of peer interaction should strongly be encouraged (the cooperative and/or collaborative dimension). Such a dialogical dimension should also be reinforced between the teachers/learners when, as in the case of this small scale research, the class-size allows for it. In fact, in our EMI context, students tend to focus on attaining comprehension individually without ever seeking the help or intervention of their fellow students. Our findings are in line with Flowerdew & Miller (1992).

As reported previously, although 40% of the students stated that they systematically requested that the teacher repeat words or concepts, the video recordings in fact illustrated practically no such interaction despite the teacher's attempt to elicit participation (Di Sabato et al., 2024). Indeed, the use of hedges such as 'probably', 'could' and 'maybe' in the student's answer reported in §3 ("Probably ask, also because he's also an Italian teacher and hmm… I could probably ask maybe, 'Sorry, what does it mean in Italian, this word?'"), highlights the fact that the student is not truly convinced that he in fact performed such an action. Such a lack of interaction may also suggest that the video recording of lessons designed to collect data in fact has an inhibitory effect on the participants, and this could be regarded as a limitation of the research.

Pursuing our claim that there is a need for a strategic exchange between the two contexts, the study highlighted the fact that whereas summarising and paraphrasing emerged in the CLIL context, abundant note-taking (mainly in English) was a characteristic of EMI settings. Each setting would benefit from the incorporation of such strategies.

Unlike the strategies mentioned by the students with regard to the EMI context, summarising and paraphrasing in the CLIL setting are clearly teacher-promoted actions. Despite the fact that they are younger learners, CLIL students could nevertheless be encouraged to develop a greater awareness of their ability to develop autonomous learning strategies.

A number of students noticed that by drawing upon their previously acquired lexical knowledge in Italian, they were able to identify the meaning of numerous terms which emerged in the EMI context. Elicitation activities to make students aware of similarities between Italian and English technical terms - in some STEM subjects due to the etymological origin of words - should be encouraged by teachers in order to enhance knowledge building and lessen the emotional load intrinsic to the study of a new subject in a foreign language.

In line with the increasing popularity of translanguaging practices in educational settings (García & Wei, 2014; Paulsrud et al., 2017), forms of task-based activities in which students

engage in web searches in more than one language should also be promoted in EMI settings, and the effectiveness of this strategic approach could then be carefully monitored and investigated.

Although from this study it clearly emerges that students do not feel that their language proficiency hinders their knowledge building in any way, the role of the L1 and L2 language teacher both in secondary and tertiary education is nonetheless of fundamental significance to improve transversal language skills such as listening, reading, paraphrasing, summarising and reporting. As emerged from our findings, in the CLIL context, students further reported that they were assigned numerous pre-lesson reading tasks connected to the thematic area of the lesson. When asked whether or not this was useful, they stated that it helped them to develop their summarising and paraphrasing skills and, in terms of strategies, to identify gist and foster critical thinking. A further point that emerged from the interviews concerned the use of online resources (dictionaries, Wikipedia, websites). By means of a follow-up question, the interviewer investigated whether these web searches were carried out in Italian or in English: in the main, students replied that the language was irrelevant, and research was carried out in both. One other skill developed in the CLIL setting and not reported by students in the EMI context was the drawing up of concept maps to identify relationships among ideas and information, and thematic word groups to promote vocabulary building and growth. As a memorizing strategy, students further reported that in their CLIL classes they drew up bilingual glossaries to be exploited as reference tools. The authors believe that it might be worth following the progress of students throughout their academic career to investigate whether after such recall of previous experiences and actions they spontaneously regain some of the strategies linked to the CLIL experience. Indeed, the comments provided by the students with regard to the CLIL environment materials collected reveal that they are more than willing to critically review their learning actions over time.

Close investigation of discarded practices in CLIL settings may, in our view, compensate for some of the criticalities in EMI. Indeed, integrating these abandoned CLIL practices into the EMI context could significantly enhance the students' learning experience by catering to diverse learning styles, promoting collaborative learning, and improving both the understanding and better retention of content along with greater language proficiency. The passage from CLIL to EMI is also a move from teacher-driven, to student-driven knowledge construction. While acknowledging the fact that most of the differences that have emerged in this study are due to the increase in age and maturity of the participants, it seems to the authors that this peer-to-peer collaborative dimension, typical of the school learning environment, ought to somehow be maintained and promoted whatever the academic context and age of the students.

4.2 Conclusion

Despite the fact that this study is based on a small dataset, we are able to shed some light on the strategies employed by the students in our sample in order to facilitate their language and content acquisition. Throughout the study, we focused specifically on their awareness of the added value ascribable to what they had already acquired during their high school CLIL

studies in terms of learning strategies, knowledge and competences.

Our findings reveal that there is a clear need to develop the competences acquired at secondary level and apply them appropriately to the new context at tertiary level whilst simultaneously adapting to the new learning environment. This is especially the case in terms of ensuring an understanding of the relationship between content knowledge and the language needed to understand and develop that content knowledge. Indeed, students do not appear to have come to grips with the transitional issues posed by the two very different learning environments and they seem to find it difficult to transport what has been learnt previously into their current educational context.

The results of this investigation will serve to stimulate further research on transitional issues and prefigure awareness-raising strategies to be developed by teachers working more collaboratively in the two settings. We truly believe that this is the best way to face the challenges and opportunities posed by offering content subjects through the medium of English.

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Note

Note 1. The students were all given pseudonyms for confidentiality reasons and full written approval was obtained from all participants.

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