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Rediscovering feedback and experiential learning in the English-medium instruction classroom

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Abstract

The worldwide proliferation of English-medium instruction (EMI) in the higher education sector has compelled researchers to investigate the implementation challenges faced by teachers and students in such contexts. However, very few studies have focused on changes in pedagogical approaches to enhance EMI teaching and learning. This explanatory mixed-methods study aimed to examine the value of two pedagogical practices, i.e., formative feedback (FF) and experiential learning (EL), used in an entrepreneurship course in a science-and-technology EMI university in South Korea. The findings of a survey of the 352 business and engineering students enrolled in the course revealed that learners who engaged in extensive FF and EL activities (treatment group) had significantly better self-perceived subject comprehension, motivation, and overall satisfaction with the course than their counterparts who were taught in a lecture-type environment (control group). The analysis of the focus group interview data confirmed that learners perceived these pedagogical practices as effective in promoting the simultaneous acquisition of knowledge of the subject and English language skills, which is the most desirable outcome in an EMI class. This study paves the way for more rigorous research on EMI pedagogy.

Keywords

English-medium instruction, formative feedback, experiential learning, learner-centred teaching, entrepreneurship education

Introduction

English-medium instruction (EMI) has grown exponentially in the higher education (HE) sector worldwide as internationalization has become a priority for HE institutions (HEIs), which have sought to expand their campuses in various regions worldwide, enhance their educational and research networks, and attract international faculty and students. Previous research tended to focus on teacher and/or student perceptions of the introduction of EMI, reasons underling its implementation, challenges, and recommendations for improvement (Kim, 2017; Kym & Kym, 2014). However, very few studies (Kim, 2018; Chou, 2016) have addressed the teaching quality and changes in teaching methodology aiming to achieve EMI goals related to content learning and language proficiency, particularly in the Asian context. Given the increasing demands placed on both EMI educators and learners, it is imperative to identify and adopt best practices that will yield the most robust outcomes. Therefore, the current study aimed to contribute to this growing area of research by unravelling a combination of the following two pedagogical practices used in a business course: formative feedback (FF) and experiential learning (EL).

Although deemed important, FF and EL appear to be underutilized in HE in both EFL and EMI settings due to professors' frustration with their research commitments and heavy teaching loads (Kim & Tatar, 2017; Winstone & Carless, 2019; Wurdinger & Allison, 2017). As the foundation of formative assessment, feedback is intended to provide students opportunities to revise and improve their work and deepen their understanding (Molloy & Boud, 2013). Feedback must be specific, timely, relevant, personalised and forward looking (Kim, 2018; Taylor & Burke da Silva, 2014; Wang & Lehman, 2021).

EL in HE has been a key indicator of the instructional quality in top business schools that strive to equip their students with the necessary skills, competencies, and resources to succeed in the global workplace (Association to Advance Collegiate Schools of Business (AACSB), 2021; Bryant, 2013). Proponents of this practice assert that EL shifts the emphasis from traditional or didactic learning in a classroom to exploring the real world from a personal or peer perspective (Efstratia, 2014; Rodriguez & Lieber, 2020). In the culture of EL, the instructor accepts a less dominating and teacher-centric role, guides rather than directs the learning process, and allows students to experiment and discover solutions independently (Wurdinger & Allison, 2017). EL can be particularly helpful for engineering students. For instance, although students majoring in computer programming can learn about the basics of coding from a textbook, they must also develop a software application to learn effectively, even by trial and error (Gadola & Chindamo, 2019). The university where the present study was conducted has adopted an interdisciplinary approach by offering mandatory courses to both business and engineering students to optimize their employability prospects after graduation. Since most research participants were engineering majors, who tend to have difficulties with the comprehension of business courses, especially in the EMI context, EL was particularly meaningful as EL could address this issue and provide learners both theoretical knowledge and practical skills.

No previous research examined the use of a combination of extensive FF and EL practices to help EMI students understand the content of the subject they are learning in a foreign language, particularly in Asian settings. To address the gaps in the empirical literature and offer practical insights for EMI research, particularly regarding the research context and teaching methodology, the following research questions were posed:

(1) What are the differences in self-perceived subject comprehension between learners exposed to extensive FF and EL activities and those studying in a lecture-type learning environment?

(2) How do learners perceive FF and the use of EL in relation to content and language learning?

Background

English-medium instruction

The anglophonization of global HE has increased the significance of not only English-language education but also learners' content mastery through English (Macaro et al., 2018). EMI is proliferating at an impressive speed worldwide, and research concerning EMI is a relatively new field. Since a widely purported advantage of EMI is that it provides students with a double benefit, i.e., simultaneous acquisition of both English-language skills and knowledge of the subject matter (Galloway, Numajiri, & Rees, 2020), EMI is considered an asset rather than a liability (Lasagabaster, 2016).

EMI programs and courses are gathering momentum in HEIs worldwide at an unprecedented rate (Galloway et al., 2020; Jenkins & Mauranen, 2019). The spread of EMI in Europe has its roots in the Bologna Declaration, which had the purpose of encouraging universities to remove/reduce barriers possibly preventing teaching staff and student mobility across European HEIs and even globally, in turn increasing the number of EMI offerings (Capano, Regini, & Turri, 2016). The Netherlands and Germany have been leading in a number of EMI programs, and Denmark and Sweden have seen the fastest growth in EMI programs (Airey et al., 2017). EMI has also gained popularity in the Asia-Pacific region for several reasons: (1) English is the official working language of major regional and global organizations (e.g., ASEAN, APEC, WTO); (2) the HE sector is growing in the Asia-Pacific region, representing a large number of internationally mobile students; and (3) government policies (e.g., implementation of bilingual curriculum in universities nationwide, establishment of Western campuses operating in English) are being implemented in relation to internationalization (Walkinshaw, Fenton-Smith, & Humphreys, 2017). For instance, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) has promulgated the government-funded 'Global 30' project aiming to support selected core universities in attracting more international students, boosting local students' competitiveness in the global and domestic labour markets by developing degree programs conducted in English, and fostering Japanese HEIs' cooperation with top world universities (Shimauchi, 2018). Similarly, in China, EMI provision is a part of the Ministry of Education plan, aiming to improve the quality of undergraduate education and attract more international students (Perrin, 2017).

Unsurprisingly, in the above context, the internationalization trend has directly influenced South Korea, where this study was based, causing rapid changes in the HE landscape (Kim, 2017; Byun & Kim, 2011). Although universities in South Korea have offered EMI courses since the 1990s, their number has significantly increased since 2004, when the South Korean government initiated financial support for universities that adopted an EMI policy (Lee, 2015). According to recent data, the number of international students studying in South Korean universities has drastically increased, nearly doubling from 83,842 students in 2010 to 153,695 in 2020 ("Number of foreign students in HEIs in South Korea from 2010 to 2020", 2020). The main objectives of the government projects were to develop world-class research universities through publications in internationally recognized journals, nurture globally competitive graduate students through various scholarship programmes,

and reform South Korean HE (Lee, 2015). As a result, the proportion of EMI classes offered at Korean universities rapidly increased (Byun & Kim, 2011; Kim, 2017). In particular, many science, technology, engineering, and mathematics (STEM) universities have adopted EMI due to their dependence on international educational and research collaboration (Block & Moncada-Comas, 2019; Kim, 2014). The STEM university where the current study was conducted offers lectures 100% in English.

Although some studies have reported the positive effects of EMI on language proficiency and content learning, the effectiveness of EMI programmes is still controversial due to various implementation challenges, including contextual and language-related factors, insufficient teacher-student interactions and a lack of feedback regarding students' work (Kim & Tatar, 2017; Kim, 2017; Kym & Kym, 2014). Moreover, the use of an inappropriate teaching methodology seems to exacerbate the problems related to lecture comprehension, especially in engineering education (Ali, 2020). Consequently, the EMI teaching quality must encompass "not only English proficiency and teaching skills through L2 but also skills of instruction in respective academic disciplines" (Macaro & Han, 2020, p. 219). Recent studies have called for a change in EMI pedagogy by suggesting training in English language and EMI classroom discourse and EMI certification (Ali, 2020; Macaro, 2015; Macaro & Han, 2020); however, studies related to discipline-specific pedagogical competence have been scarce. The current study attempts to fill these gaps by introducing a combination of two learner-centred teaching practices aiming to enhance business and engineering students' lecture comprehension and motivation in an EMI classroom.

Formative feedback

As the foundation of formative assessment, feedback has always played an important role in learning in the EFL context (Molloy & Boud, 2013). A robust volume of published studies has addressed various questions regarding the types of feedback that facilitate L2 development and content learning, including *written corrective feedback* (Bitchener & Storch, 2016), *oral feedback* (Sarandi, 2016), *audio-visual feedback* (Kim, 2018; Cavaleri et al., 2019), and *summative* and *formative feedback* (Kim, 2018; Taylor & Burke da Silva, 2014). Over the past two decades, summative feedback, which emphasizes summarizing student performance and reporting performance in the form of grades or end-of-course exam scores, has been replaced with FF, which focuses on students' learning process and future practices (Hyland & Hyland, 2006). Chan et al. (2014) stated that "feedback provides a vehicle for integrating all components of formative instructional practices" (p. 96) as follows: setting clear learning goals, engaging learners in target-oriented learning activities, collecting evidence of learning, and analysing the data to provide effective feedback. Many researchers agree that the formative assessment approach can enhance collaboration between stakeholders and suggest that feedback should be timely, personalised, based on criteria, forward looking, and applicable to further improvement to close the gap between a learner's current performance and targeted performance to reach mastery (Kim, 2018; Kim & Kim, 2020; Taylor & Burke da Silva, 2014). Therefore, it is insufficient to provide feedback that simply informs students of what was completed incorrectly only at the end of the semester.

In their meta-review of published review studies on feedback over the last fifty years, Van der Kleij et al. (2019) claimed that reviews have emphasized a more learner-centred perspective since students have been increasingly recognised as 'active agents in their learning and interaction with feedback' (p. 319). Furthermore, Smith and Lowe (2021) evaluated a novel '"DIY" – do-it-yourself' assessment and feedback process in which students were actively engaged by co-developing the assessment criteria for their own work, self-assessing it and even allocating a mark. The researchers

found that learners appreciated this approach since they were 'able to engage with and reflect on their assessment feedback in a more meaningful way' (p. 7). The present study highlights the importance of FF, which has the potential to strengthen EMI practices by helping students move their learning forward as the focus in teaching should be on not only learning outcomes but also the learning process.

Experiential learning

Questions regarding the quality of HE have grown in complexity and significance over the last few decades, and the quality of HE has become a dominant public policy issue worldwide (Bryant, 2013). Considering various quality concerns, many internationally oriented business schools have sought to enhance the quality of their programmes by pursuing international accreditation to cultivate the skills, values, and resources necessary to prepare students to succeed in the global workplace and meet the needs of a rapidly changing business environment (Bryant, 2013). With unceasing advances in technology and the constant need for new, sophisticated skills, business schools must reconsider traditional educational models and seek industry partnerships to bridge the gap between academia and the workforce. EL plays a critical role in this context. According to the AACSB, which is the largest accrediting body for business schools worldwide, using EL in business school curriculum in both academic and professional settings has become imperative for achieving learning goals in meaningful ways (AACSB, 2021).

One of the most prominent theories of EL in HE postulates that knowledge is created through the transformation of experience and is based on concrete experience, reflective observation, and active experimentation (Kolb, 1984). This process requires much interaction for learning to occur and represents a continuous learning cycle. Hawtrey (2007) defined EL as the "incorporation of active, participatory learning opportunities in the course" (p. 144) during which students transform from passive listeners to active respondents. In their study, Villarroel et al. (2020) reported that students involved in EL valued the opportunity to learn in greater depth, remembering it better, and applying their knowledge in specific situations to solve real-life problems. The importance of EL is also well expressed in the following famous quote by Confucius: "I hear and I forget, I see and I remember, I do and I understand."

Learning through experience is not a new concept in HE; however, its use in HEIs remains limited. The dominant impediments to using EL activities in the classroom include time constraints, large class sizes, the lack of motivation and heavy faculty teaching loads (Kim & Tatar, 2017; Wurdinger & Allison, 2017). Even though educators intuitively understand the effectiveness of EL in terms of students' stronger academic performance and motivation, higher acceptance rate to graduate schools and increased employability prospects, they still prefer highly structured, lecture-driven instruction (Pitan & Muller, 2019).

The current study was conducted in an entrepreneurship course at a business school in which EL plays a crucial role in building students' practical knowledge of the key concepts. According to Corbett (2005), entrepreneurs need to learn by doing and seek new opportunities to succeed; therefore, "the idea of transforming experience and not focusing on outcomes is crucially important as to why ELT [experiential learning theory] fits well with entrepreneurship and behavioural theories do not" (p. 482). Moreover, recent research has shown that there is a positive relationship among entrepreneurship education pedagogy (i.e., EL), students' noncognitive skill development, the entrepreneurial mindset and confidence in future career success (Rodriguez & Lieber, 2020).

The university where the present study was conducted has adopted an interdisciplinary approach by offering business courses to engineering students and engineering/science courses to business students such that, after graduation, students can have a distinct advantage in the job market. Since most of the students in the selected business course were engineering majors, who tend to have difficulties learning business-related subjects, EL was particularly meaningful, as it could address the learners' difficulties and provide both theoretical knowledge and practical skills in the EMI context.

Methods

To increase the validity of the findings, gain a deeper understanding of the phenomenon, and reduce bias, a mixed-method approach was employed to address the proposed research questions (Johnson & Christensen, 2014). Quantitative data were collected to provide results regarding the effectiveness of EMI courses and learners' perceptions of extensive feedback and EL, while qualitative data were collected to provide revelatory information to validate and enrich the interpretation of the quantitative results. The quantitative data were analysed using IBM SPSS Statistics software (version 24). The significance level in all inferential statistical tests was set at $p \leq .05$. For the analysis and interpretation of the qualitative data, ATLAS.ti 8 was used.

Research context and participants

This study was conducted at a science- and technology-oriented university located in an industrial metropolitan city in South Korea. To promote the internationalization of research and education and foster students' global competitiveness, all courses are taught exclusively in English. The study participants were enrolled in two sections of the entrepreneurship course, which is mandatory for both business and engineering students. The goal of this course is to introduce students to the essential attributes of an entrepreneur and the stages of growing the seed of an idea into a successful business. The lectures were based on Pearson's textbook and delivered in English, all of the class and team discussions were conducted in English, and all of the assignments were submitted by the students in English.

The study drew on data from 352 undergraduate students (26% freshmen, 15% sophomores, 20% juniors, and 39% seniors), who were enrolled in four sections of the course. Two sections of the course were randomly assigned to the control group (CG, n=175), and the remaining two sections formed the treatment group (TG, n=177). Similar to most STEM universities, the female students (29%) were greatly outnumbered by their male counterparts (71%). International students, mostly from Central Asia (Kazakhstan, Uzbekistan, etc.), comprised 8%. Approximately 9% of the students were business majors, 65% were science/engineering majors, and 26% were freshmen who had not yet selected a major. Almost 74% of the students in both the CG and TG self-rated their English ability as intermediate to advanced. Both groups shared the same syllabus, textbook and assignments. The instructors were female Koreans who are fluent in English, have foreign degrees in business, and had taught the course for more than three years.

Research instruments

A paper-pencil questionnaire using a five-point Likert scale ranging from "strongly disagree"=1 to "strongly agree"=5 was designed to compare the differences between the groups and was administered at the end of the semester (week 16). The survey comprised demographic information (5 items), perceptions of lecture comprehension (5 items) and professor feedback (4 items). The TG

completed an additional part, which enquired about the respondents' perceptions of the effectiveness of EL (5 items). The survey was supplemented with follow-up open-ended questions.

To validate the quantitative data from the questionnaire (Riazi & Candlin, 2014) and gain more insight into the students' perceptions of feedback and EL, the responses from a focus group interview were used to further explore the second research question. An email invitation to participate in the interview was sent to all TG students, and five students expressed their willingness to contribute. An informed consent form was read and signed by each participant. The interview was conducted in English, although the Korean interviewees were given the choice to switch to Korean when they felt this shift was necessary. The interview lasted 1 hour and was audio-recorded and transcribed verbatim. The respondents' names were replaced with identification codes (Table 1). The questions basically mirrored the survey items to authenticate the answers and thoroughly address the following research questions: (1) How helpful was the professor's feedback? (2) What do you think of the EL activities conducted in the class? (3) How did the feedback and EL facilitate your understanding of the subject matter? (4) How did these practices facilitate your English-language learning?

Table 1

Interviewees

Code	Gender	Nationality	Major	Year
B1	Male	Korean	Business	Senior
B2	Female	Korean	Business	Sophomore
E1	Male	Korean	Engineering	Senior
E2	Male	Korean	Engineering	Sophomore
E3	Male	International	Engineering	Junior

By incorporating the survey and interview, the research design enabled an in-depth analysis of the students' perceptions of their EMI learning experiences.

Research design and data collection procedures

The classes met twice per week for a 75-minute class period each over the course of a 16-week semester. The method of instruction by group is shown in Figure 1. The CG received basic oral feedback concerning business ideas during in-class team discussions. However, the TG received extensive oral feedback concerning the teams' business ideas during the class and the instructor's office hours and detailed written feedback on all assignments via the BlackBoard system. Feedback was given based on a rubric designed as a guide that involved general criteria for assessing learners' business writing and presentation skills.

For instance, instructor B noted the positive aspects of a written product concept statement (description of the product/service, its purpose, consumer demographics, etc.) and subsequently highlighted the parts that required improvement using BlackBoard annotation tools (drawing and comment bubbles) while further providing advice concerning how to enhance the content and language (Figures 2-3) Content feedback included comments on the layout and style of a business plan, idea feasibility, sufficient knowledge of the core issue and so on. The feedback was backed with examples and advice in terms of how a learner can do better in future scenarios. In some cases, the instructor asked questions (in written form), which led the learners in the direction in which she

wanted them to go. Language feedback, in contrast, pointed out the proper use of business vocabulary and language mechanics (e.g., capitalization, abbreviation).

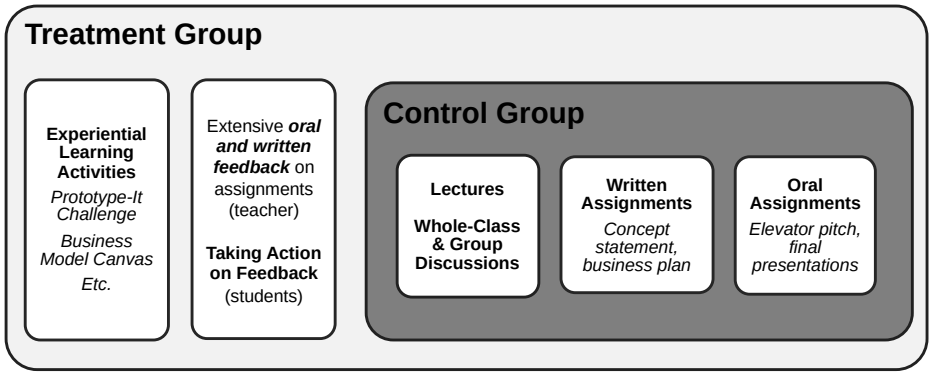


Figure 1

Method of Instruction by Group

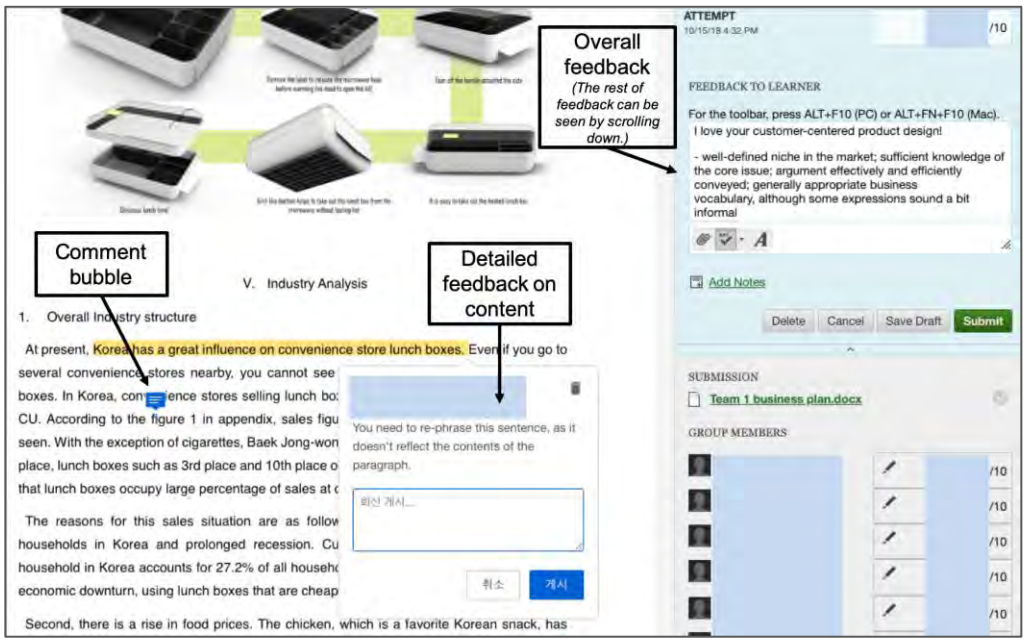


Figure 2

Screenshot of BlackBoard Grade Centre with the Instructor's Feedback Concerning the Content

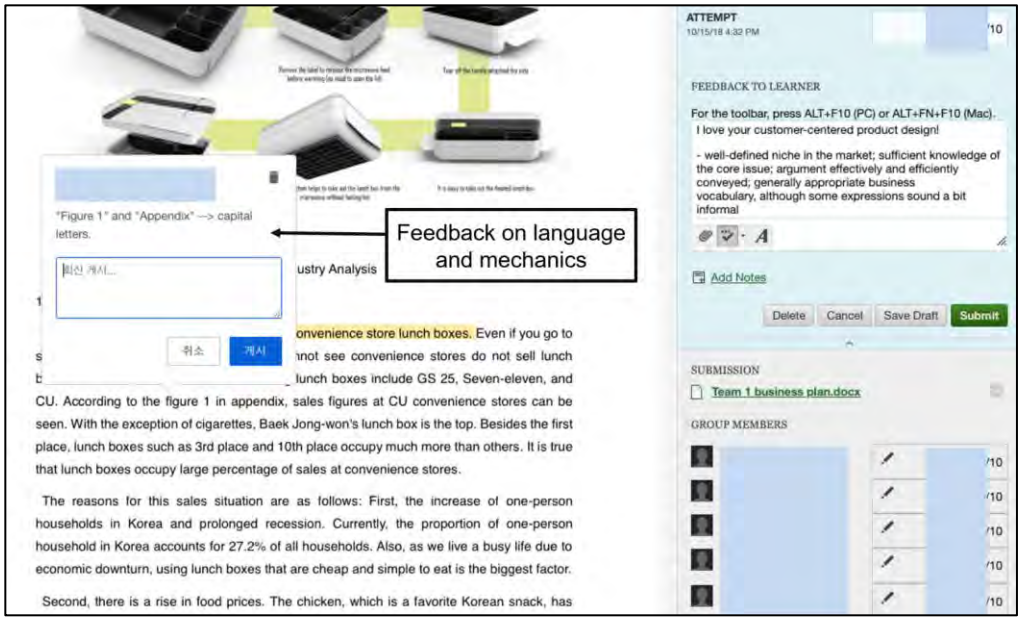


Figure 3

Screenshot of BlackBoard Grade Centre with the Instructor's Feedback Concerning Language

The purpose of the feedback was not to specify all errors but to indicate error patterns and provide guidance to the students through the correction process (Kim, 2018; Taylor & Burke da Silva, 2014). The students had the opportunity to act on the feedback by completing the full business plan at the end of the semester.

The TG participants had an additional team project called the *"Prototype-It Challenge"* (PIC), which has often been used by Babson College educators (Neck et al., 2014). During week 4 of the course, the students were introduced to the concept of design thinking, the prototyping process, their target customers (middle-school students), and a health problem (dangerous vitamin D deficiency in children). The purpose of the activity was to engage the students in EL through idea generation, critical thinking, early customer feedback, and opportunity evaluation stages in the entrepreneurial process. Each team had one day to create a low-fidelity prototype of a vitamin dispenser for teenagers allowing them to take their daily chewable vitamins independently. The students were instructed to use basic recycled materials, briefly (40 sec.) present the prototype concept in a video, and upload the video to the collaboration platform to receive feedback from the instructor and potential customers (three 14-year-olds). The teams were assessed based on creativity, overall presentation, storytelling, and customer feedback. There were also other EL activities (e.g., Business Modal Canvas).

Results and discussion

Level of comprehension of the entrepreneurship course

The first research question explored the differences in the subject comprehension of learners exposed to extensive FF and EL activities and those studying in a lecture-type learning environment. An independent-samples t-test was conducted to determine whether the self-rated ability to comprehend the entrepreneurship course in English differed between the CG and TG. The results indicate that there was a significant difference in comprehension between the groups, $t(310)=13.731$, $p=.000$. Thus, the average comprehension level of the CG participants ($M=3.36$, $SD=.70$) was significantly lower than that of their counterparts in the TG (Table 2).

Table 2

Difference in Perceptions of Entrepreneurship Comprehension

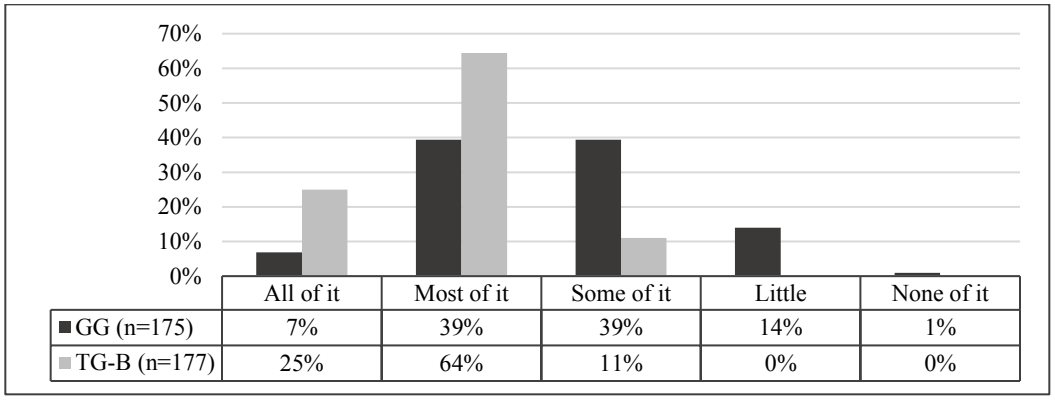
Group (N)	Mean	SD	t	df	Sig.*
CG (175)	3.36	.70	-13.731	310	.000
TG (177)	4.23	.48			

* p<.05

Based on these results, it can be concluded that FF and EL played a significant role in improving the TG students' lecture comprehension, which is particularly meaningful in challenging EMI settings. The findings also revealed that 46% of the CG and 89% of the TG understood "all of it" (lecture in English) or "most of it"; 54% of the CG had problems understanding ("none of it", "little", or "some of it"), while this proportion was substantially lower among the TG participants (11%). Noteworthy, not a single TG participant marked "none of it" or "little" (Figure 4).

The participants who marked "none of it", "little", or "some of it" were also asked to provide their reason(s) for the insufficient comprehension of the course by choosing multiple answers from a list of choices. The results reveal that both groups considered their English proficiency and/or difficult course content major causes of their low lecture comprehension (Figure 5).

These findings seem consistent with other research emphasizing learners' language problems in EMI classrooms (Kym & Kym, 2014) as students are "assessed through a language they are still learning" (Li & Wu, 2018, p. 29). Interestingly, none of the students in the TG perceived the instructor's teaching to be ineffective, suggesting that FF and EL aided the business, engineering and even no-major students similarly in understanding the course content. Among the TG participants who understood "some of" entrepreneurship (n=20; engineering majors=10, no-major freshmen=10), 8 learners considered the difficult course content a key factor affecting their lecture comprehension, and all 20 students blamed their low English proficiency. In the "other" comments, the students cited terminology unfamiliar to engineering students, a lack of time to study for the business course, and a lack of interest in business courses. It can be assumed that these comments were provided by the engineering students, who are generally less motivated to study business-related content.



	All of it	Most of it	Some of it	Little	None of it
GG (n=175)	7%	39%	39%	14%	1%
TG-B (n=177)	25%	64%	11%	0%	0%

Figure 4

Level of comprehension of entrepreneurship by group

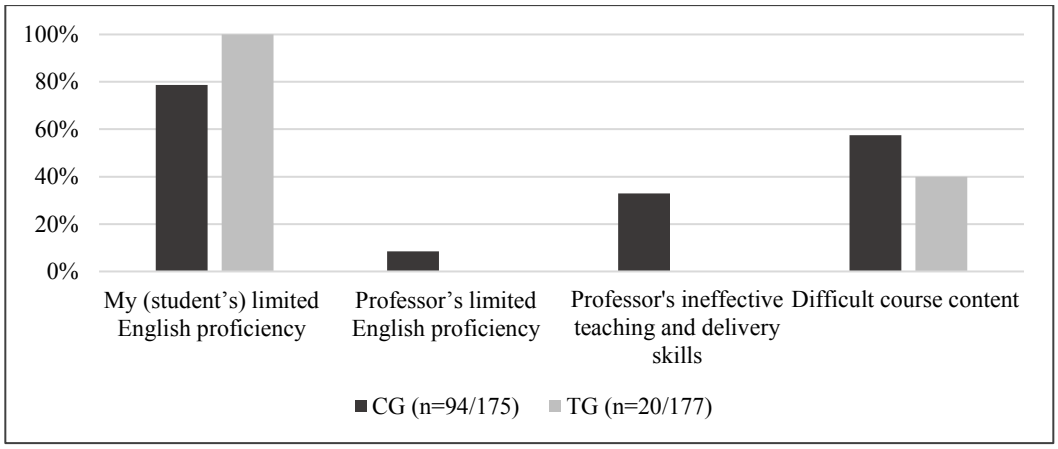


Figure 5

Reasons for the low comprehension of entrepreneurship lecture by group

Perceptions of feedback and EL in the EMI classroom

The second research question focused on the students' perceptions of the teacher's FF and the use of EL in relation to content and language learning. First, we probed the effectiveness of feedback using a five-point Likert scale based on the following four items: "Professor's feedback helped me understand the subject"; "Professor's feedback helped me improve my English ability"; "I used the professor's feedback to improve my assignments"; and "Professor's feedback increased my motivation to learn entrepreneurship." The responses were reliable within each research group, and the Cronbach's α was .844 (CG) and .821 (TG). The perceptions of feedback statistically significantly differed between the groups as determined by an independent-samples t-test, $t(297)=14.965$, $p=.000$ (Table 3).

Table 3

Differences in Perceptions of Teacher Feedback

Group (N)	Mean	SD	t	df	Sig.*
CG (175)	3.35	.80	-14.965	297	.000
TG (177)	4.43	.52			

* p<.05

The results indicate that as a formative instructional practice, feedback not only significantly contributed to the TG students' better comprehension of the entrepreneurship course conducted in English but also improved their language ability and motivation. The study results corroborate the findings of previous research suggesting that greater learning can be achieved by teaching less and providing more feedback as "education is so much more than just information transfer" (Mazur, 2009, pp. 51-52) and that providing frequent FF is crucial for understanding the subject and boosting motivation. The present study also provides additional support for the existing literature concerning the impact of feedback on learners' comprehension of a subject by exploring the effects of feedback in the EMI context from business and engineering students' perspectives.

The students' perceptions of the value of EL in the EMI classroom were investigated only in the TG. Ninety percent of the participants stated that it was their first time creating a prototype of a product, and 95% of the students mentioned that it was their first time receiving feedback on a prototype. When asked about their perceptions of the *effectiveness of experiential learning*, the students exhibited very positive attitudes towards this type of learning environment (*M*=4.67, *SD*=.45). The results of this study indicate that among the 5 items of the *effectiveness* construct (Cronbach's α=.805), the student perception that *the experiential learning opportunity in this course was highly valuable* scored the highest (Item 1: *M*=4.92, *SD*=.28), and the other four items showed quite high mean scores (Table 4).

Table 4

Descriptive Statistics of the Effectiveness of Experiential Learning (n=177)

Item	*Mean*	*SD*	*Skewness*	*Kurtosis*
I think the experiential learning opportunity in this course was highly valuable.	4.92	.28	-3.008	7.126
Experiential learning fostered a stronger knowledge of entrepreneurship.	4.77	.42	-1.322	-.257
Experiential learning fostered a stronger interest in entrepreneurship.	4.63	.51	-0.792	-.772
Experiential learning helped me improve my teamwork and leadership skills.	4.49	.50	0.034	-2.022
This course helped me study complex real-world problems.	4.54	.54	-0.576	-.83

Additionally, the data from the open-ended question 'Do you have other comments about feedback and EL?' revealed two overarching themes. First, 46% of all comments (n=83) concerned the perceived *effectiveness of FF and EL*. Some students (29%) noted that these two pedagogical

practices were helpful in understanding entrepreneurship and facilitating new content knowledge (e.g., 'Even though I am not fluent in English, I could learn a lot about entrepreneurship thanks to easy explanations, interesting activities and the professor's non-stop feedback'; 'I could learn how to think from a customer's perspective by making a prototype. Learning about design thinking was very interesting and useful'; 'Thanks to the professor's detailed feedback, we could improve the quality of our business plan and presentation'). Other respondents (10%) reported that FF and EL were novel for them (e.g., 'The material, which is relatively boring for engineering students, was presented in an innovative way'). A smaller number of students (7%) claimed that both teaching practices were useful in language learning (e.g., 'I loved the way the professor tried to explain the content or difficult vocabulary using various methods and giving us feedback every class or assignment').

The second theme was the *effectiveness of the overall instruction* (42%). The students mentioned that they liked the *instructor's passion* (20%), *choice of interesting activities* (12%), and *level of detail of feedback* (10%). Open-ended comments demonstrated an appreciation of the teacher's efforts to build rapport with students through FF and EL. For instance, one engineering student pointed out that 'The professor's teaching style through various activities and feedback shows that she cares about students, which is very important to us', and another student noted, 'I've never received that amount of feedback in other courses'. In line with this opinion, a business student wrote, 'I could feel the professor's passion in the class, and she truly wants to improve my skill in my achievement by giving detailed feedback, so I realized that I need to do my best'. It can be inferred that these aspects contributed to a stronger student-teacher relationship since the students expressed their satisfaction with how the instructor cared for them.

The above theme was directly related to *other comments*, which comprised the remaining 12% of all comments and referred to *increased motivation and confidence*, *enhanced teamwork*, and *active interaction between the instructor and learners*. The following comments exemplify such opinions.

> *As an engineering student, I honestly did not have high expectations for studying anything impressive in the business field, but the class activities and professor's lecture gave me an amazing learning experience and motivated me in the class.*
>
> *I liked that the professor encouraged participation and engagement in projects. It helped raise team spirit and motivation.*

These comments evidence how the learning process could lead to a more dialogic approach to student engagement in the EMI classroom. The findings are consistent with the observations reported by proponents of EL, who claim that students are more motivated to learn when they are immediately engaged in a problem-solving activity and have a personal stake in the subject learned, rather than when they passively listen to a lecture or are assigned to read a textbook chapter (Hawtrey, 2007; Villarroel et al., 2020). A strong emphasis on collaboration and learning from each other also appears to increase the level of student ownership of the outcome. The survey results also demonstrate that EL is similarly beneficial for both business and engineering students.

The findings based on the questionnaire data regarding the TG participants' perceptions of the *effectiveness of experiential learning* were further explored in a focus group interview to better understand the extent to which the learners' descriptions of their personal experiences corresponded with the questionnaire results. When asked about their thought of the PIC and other EL activities, the learners most commonly discussed the *novelty* and *effectiveness* of the activities for acquiring

discipline-specific knowledge. For instance, the business student B2 said that the purpose of the course was to understand what entrepreneurship is and that the EL activities helped her achieve this goal. One engineering student discovered something new for himself and stated the following:

> *The PIC was a good warm up for my team's final presentation, and it made us think from the customer's perspective. Actually, when you discuss ideas, you usually say what is a unique idea or what makes our life more comfortable, but in PIC, customers have different opinions from us. So, I feel the difference between my knowledge level before and after this activity as I've never experienced thinking from other people's perspective.* (E2)

He continued to elaborate by stating that he liked the connection between the activities as, according to him, this connection promoted further understanding of the subject learned as follows:

> *The most important thing is that the professor reminded us that the customer segment is an important thing through ordering the 9-concept activity [business model canvas]. If professor didn't do that, I would have forgotten about the customer segment. That kind of connection was really good.* (E2)

This comment highlights the importance of "learning by doing" as an essential component of the educational process (Kolb, 1984; Wurdinger & Allison, 2017). Learning by doing focuses on problem solving and critical thinking rather than passive memorization (Dewey, 1938; Rodriguez & Lieber, 2020; Villarroel et al., 2020). In addition, both the business and engineering students emphasized and appreciated the opportunity to extend beyond theory and experience "real things" and the "spirit of competitiveness" as follows:

> *As an engineering student, I think the PIC and business model canvas were very novel, useful, and memorable because you can make it even without scientific knowledge. We made real things, which created a spirit of competitiveness in this class. It was made with an entrepreneurial spirit, so it felt like learning something new. We learned in an interesting way, and later, we even had that question in our exam, so you understand that it's not about memorizing.* (E1)

> *Actually, it [EL] was very helpful. Similarly to businessmen, we have our own projects to sell to target customers. So, it helped to see the reality because having practical knowledge is better than theoretical knowledge. For example, making the real business plan is better than just reading about the business plan.* (E3)

> *In the business field, we always have our tests on paper, but in the case of the prototype, it was a great chance for us to make the real thing.* (B1)

For experiences to be educational, they must be linked to the real world (Dewey, 1938; Rodriguez & Lieber, 2020; Villarroel et al., 2020). The focus of EL in the entrepreneurship class was placed on the process of learning rather than the product of learning, and the interviewees appeared to value that aspect while simultaneously exploring the real world from their own or their peers' areas of interest/majors (Efstratia, 2014). This approach plays a crucial role in retaining ideas and concepts and bridging the gap between theory and practice.

The interview question "Did experiential learning and feedback facilitate your language learning in the entrepreneurship class?" elicited a range of responses. For example, E2 stated that he improved his *listening and writing skills*. He said that although he did not improve his speaking ability because he used "simple and abstract sentences" during the team discussion session, he was given a chance to listen to the lectures and express his opinion in written form (e.g., the business plan). However, B2 and E3 expressed their belief that they had improved their *speaking skills* as follows:

> *There was an opportunity to give a presentation of our business plan in front of 100 students, so I practised a lot and received individual feedback from professor. I think I improved my English speaking.* (B2)

> *I improved speaking the most because we are working as a team, and during team meetings and preparations for PIC, everyone had to present their ideas clearly. I talked a lot, and it helped me improve my speaking skills.* (E3)

Speaking, which is the most anxiety-provoking English skill, is also one of the greatest challenges in the EMI classroom (Chou, 2018). This anxiety usually results from "a lack of confidence in speaking and a fear of losing face in public" and tends "to discourage students from learning autonomously and participating actively in class" (Chou, 2018, p. 615). In the current study, the learners appeared to gain confidence in giving presentations through teacher feedback and group discussion sessions while working on the prototype.

Finally, E1 claimed that with the help of the instructor's feedback and EL activities, it was easier for him, as an engineering student, to learn business terminology. Previous studies have identified subject-specific vocabulary as a major challenge for EMI learners (e.g., Soruç & Griffiths, 2018). Therefore, the above finding has an important pedagogical implication for EMI educators.

Overall, this study attempted to shed some light on the effects of extensive FF and EL in promoting the simultaneous acquisition of both subject matter knowledge and English-language skills, which is considered the most desirable outcome in an EMI class (Galloway et al., 2020).

Conclusion

The previous literature on EMI has tended to be heavily focused on the language proficiency of teachers and students, as well as their perceptions and attitudes towards EMI policy. However, discipline-specific pedagogical competence and practice have not been researched systematically. Given the various issues faced by EMI stakeholders, it is vital to approach EMI classes in a more meaningful way that facilitates students' overall learning experience. This study makes an important contribution to EMI research by demonstrating the usefulness and effectiveness of creating a culture of learner-centred, extensive FF and EL, which act as scaffolding techniques that enhance students' comprehension of subjects taught in English, fostering their engagement, team spirit and motivation and improving their language proficiency.

Based on the findings, several pedagogical implications can be drawn from this study. First, educators must become aware that teaching by 100% lecturing will not improve the quality of an EMI class. Although all good educators should have quality lectures in their portfolios, venturing into alternative methods as opposed to traditional memorization will always be applauded by learners. This approach is particularly meaningful in the EMI context because "any learning situation which involves understanding of academic content through the medium of a second

language must surely involve consideration of the pedagogy that is being adopted by the teacher" (Macaro, 2015, p. 6). EMI teachers do not need to "re-invent the wheel", but they do need to become more aware of learners' linguistic limitations, provide more scaffolding tools to reduce learners' language anxiety to a minimal level, and be more open to class experiments with their teaching practices to achieve EMI objectives.

Second, according to its proponents, EL methodology is considered a learning accelerator that develops critical thinking, problem solving and decision making by extending beyond discipline-specific theory to the realm of first-hand experience in practising what is learned in the class. Consequently, this type of pedagogical intervention could be particularly beneficial in educating engineering and business students in the EMI context.

Third, this study indicates the salient role of extensive FF in enhancing the quality of the teacher-student relationship as a source of motivation. Thus, based on the present study findings, it is recommended that professors establish meaningful rapport with their students through the delivery of quality feedback, which makes students feel that the instructor not only provides greater insight into the assessment process but also cares about their work and validates their efforts. Since EMI success might be influenced by student motivation (Rose et al., 2019), teachers need to employ a student-centred methodology to boost students' confidence and provide opportunities to "develop their self-images as speakers and users of English in their content classes" (Lasagabaster, 2016, p. 329). Therefore, if an EMI university is truly committed to internationalization and the simultaneous implementation of high-quality pedagogy for the benefit of its students, it should foster a more collaborative environment, engage students in direct experiences that address real-world problems and have EMI instructors that play a role in facilitating student progress. Ultimately, "employers prefer hiring students who have learned experientially" (Wurdinger & Allison, 2017, p. 15).

A limitation of the present study is that the research was conducted in one course in one undergraduate business programme at a single science-oriented university, where EMI is compulsory. Consequently, it is recommended that replication studies conduct a comparative analysis in their respective contexts. Future studies could also examine the development of systematic professional training programmes for EMI teachers in Asia.

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