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Blended Learning Challenges of EFL Undergraduate Students: Student Learning Experience in an AI-integrated ESP Course

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Abstract

Blended learning can facilitate ESP learning, yet challenges in AI-integrated ESP learning are largely unexplored. This study aims to investigate the blended learning challenges of EFL undergraduate students from the perspective of student learning experience in an AI-integrated ESP course. The participants were 57 Thai mixed-level undergraduate students studying English for economics at a public university in Thailand. Using a mixed-method approach, student data were collected and analysed using Microsoft Teams learning analytics and triangulated with a questionnaire and focus group interview data. Study results showed similarities and differences in students' blended learning challenges in the diverse target participants. Participants generally viewed technological and online learning aspects as the least challenging, in contrast with social aspects as the most challenging, followed by motivation and willingness to participate in the blended learning ESP course. Despite students' academic achievement, data revealed students' negative emotions and negative blended learning experiences amongst higher-proficiency students, but lower level of blended learning challenges due to easy learning tasks and lack of teacher support for more advanced language skills. In contrast, lower-proficiency students recorded more positive emotions and blended learning experiences but a higher level of blended learning challenges. Despite lower-level English, lower-proficiency students experienced teacher support both in using AI and ESP. The study highlights the importance of teacher support, which fulfils the incomplete roles of AI in ESP blended learning, and calls for a

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reconceptualisation of blended learning challenges. Implications for pedagogy and research on AI-integrated blended learning in ESP contexts are provided.

Keywords: Artificial intelligence, blended learning, ESP, learning challenges, learning experience.

1. INTRODUCTION

Blended Learning (hereafter BL), often referred to as the combination of face-to-face and technology-mediated instruction (Porter et al., 2014), is not a new phenomenon and has been present in English language teaching for almost two decades (Hockly, 2018). However, it has only been recently, since the Covid-19 pandemic, that digital technologies have vividly transformed English language education. Inevitably, digital tools have become a significant part of teaching and learning, and with rapid developments in artificial intelligence (AI) technologies, the foreign language education field has seen a prominent rise in the use of AI applications to help with students' language skills including writing, reading, vocabulary and grammar, and speaking and listening (Huang et al., 2023). AI-powered tools such as intelligent tutoring systems, chatbots, neural machine translation, and adaptive learning systems have been integrated into teaching English as a foreign/ second language (Jiang, 2022). In the context of English for Specific Purposes (ESP), in particular, there is research on implementing AI-powered tools such as AI-based testing to improve ESP students' knowledge of tenses (Ningsih, 2023), chatbot to enhance students' Business English vocabulary (Qasem et al., 2023), and Bing Chat to improve Business English grammar and vocabulary (Kovačić & Bubaš, 2023). While these AI-based tools were adopted for use outside class, there was no clear evidence in terms of how AI technologies influence students' BL experience.

In its simplest sense, BL involves a situation where students learn in synchronous and asynchronous modes, allowing more flexibility and variety of learning. As a result, BL has established its presence in English language education across all contexts, although it may be difficult to draw clear lines in terms of benefits and drawbacks due to a wide variety of BL adoption contexts (Hockly, 2018). In the sphere of ESP, there is evidence that BL can benefit ESP learners provided that 'materials and contents, learning assessment, tasks and activities, learner support, learning mode', and 'learning platform' are designed to meet students' learning needs (Zhang, 2021, p. 5). Nonetheless, for ESP in higher education, certain issues in implementing BL, including 'a large number of students in a group, different levels of language knowledge, student's motivation, and availability of teaching materials' must be taken into account (Stanišić et al., 2022, p. 303). That is to say, the challenges of BL are still present for all stakeholders involved. Whether it is institutions, teachers, or students, some aspects of BL, such as online components, can become challenges in applying BL in any ESP course. Moreover, several studies also emphasise the importance of understanding students' challenges in BL, as students are the centre of BL experience (Rasheed et al., 2020). From the learner-centred approach, it is as important for

students to evaluate their own learning experience as to evaluate teacher performance as an indicator of teaching quality (Zerihun et al., 2012).

Current literature related to ESP students' perception of BL experience can be found (e.g. Mulyadi et al., 2019; Stanišić et al., 2022), and BL challenges have been discussed amongst business English students in terms of the appropriate blend of synchronous and asynchronous tasks (Perveen, 2016) and in English for finance students in terms of BL platforms and social interactions (Gaffas, 2023). For English for economics, there is research investigating the effectiveness of a blended learning platform on economic students' motivation to learn English, but little has been mentioned regarding BL challenges, such as those derived from the BL platform used (Pivneva et al., 2023). With specific online platforms or AI-powered tools, ESP students' BL experiences and challenges can become increasingly complex. To date, there is not yet a study which explores BL challenges of economic students in an AI-integrated ESP course where Microsoft Teams and its AI-empowered tools are implemented.

Based on Awidi and Paynter's (2019) framework of student learning experience and Tiang-uan and Taylor's (2021) online learning challenges, this study aims to explore BL challenges of students studying in an AI-integrated English for Economics course at a Thai public university through the lens of students' learning experiences. The research questions are:

1. What are the BL challenges in synchronous learning of EFL undergraduate students in the studied AI-integrated ESP course?
2. What are the BL challenges in asynchronous learning of EFL undergraduate students in the studied AI-integrated ESP course?

By adopting a mixed-method approach, the study collected data from undergraduate students in different faculties and different years of study using learning analytics data from the teaching/learning platform, Microsoft Teams, questionnaires of student learning experience and learning challenges, and focus group interviews. In exploring students' BL experience and BL challenges in the AI-integrated English for Economics course, the results of the study can help inform course instructors, course coordinators, and programme administrators of students' learning challenges through the lens of student learning experience in this ESP context, which can provide implications in terms of the integration of Microsoft Teams and its AI-powered tools in BL.

2. LITERATURE REVIEW

In constructing a theoretical framework for this study, concepts revolving around blended learning, ESP, and student learning experience are explored. The interconnectedness amongst these conceptualisations is discussed in terms of how they can be used to explore students' BL challenges in the studied ESP context.

2.1 Blended Learning in ESP

Blended learning (BL) is an educational approach which focuses on the combination of instructional modalities or delivery media (Margaryan & Alyavdina,

2019). While definitions of BL may seem vague, scholars appear to share a consensus that BL is a learning design where face-to-face instruction is blended with computer-mediated instruction (e.g., Garrison & Kanuka, 2004; Kerrs & De Witt, 2010; Staker & Horn, 2012). According to Staker and Horn (2012, p. 3), BL is an education programme ‘designed for students to take part in 1) online learning with some element of student control over time, place, path, or pace and 2) at least in part at a supervised brick-and-mortar location away from home’. Therefore, two modes of learning include 1) synchronous learning where students learn in-person with the in-class instructor and 2) asynchronous learning where students work on their own outside class at their own pace. During the Covid-19 lockdown, the application of BL was also seen in the form of ‘blended online learning’ with both synchronous and asynchronous learning taking place online (Fadde & Vu, 2014). However, after the lockdown ended, BL in many educational contexts including English language education resumed its pre-pandemic stage, which is a ‘thoughtful integration of classroom face-to-face [i.e. brick-and-mortar] learning experiences with online learning experiences’ (Garrison & Kanuka, 2004, p. 96).

The benefits of BL are widely acknowledged in various disciplines, including English language education. BL can help promote learners’ English competence, motivation, autonomy, and ICT literacy (Menggo & Darong, 2022). While synchronous learning in BL allows real-time interactions between teachers and students, teacher’s comprehension checks, repetition, paraphrasing, as well as non-linguistic inputs through body language, asynchronous learning provides flexibility for learners who may learn at different paces and who may feel anxious or shy performing language tasks in front of others (Perveen, 2016). In the asynchronous mode, learners can also participate in either self-paced directed or collaborative asynchronous learning, allowing learners to work on their own or with their peers at their own pace (Noirid & Srisa-ard, 2007). Nonetheless, some drawbacks of BL are also mentioned in English language education literature. Internal factors such as student motivation and external factors such as the availability of technology and internet connection are the main challenges (Duong & Nguyen, 2021). The blends of learning tasks in synchronous and asynchronous modes can also be challenging for scaffolding student learning (Perveen, 2016). Despite these common issues, BL challenges can vary due to specific learning contexts involving varied factors contributing to the success of blended learning and language learners’ achievement.

For ESP contexts, BL can appear rather complex due to various elements which are significant for BL design and evaluation in ESP. These include course objectives, materials and content, learning assessment, tasks and activities, learner support, learning mode, and learning platform (Zhang, 2021), all of which must fit the disciplinary needs. Due to these specific needs, teaching and learning in an ESP course presents challenges which may differ from academic English courses, for example, ‘presenting new vocabulary to students, different situations in a business environment, adopting and implementing professional vocabulary when writing a paper, and instructing students on how to translate professional texts’ (Stanišić et al., 2022, p. 303). Although these challenges might be viewed as ESP instructors’ challenges, students’ BL challenges in ESP have also been discussed in the literature. Perveen’s (2016) study regarding Business English students, for instance, demonstrated that ESP students expect an appropriate balance in blended learning. That is, complex concepts

and tasks should be employed in synchronous mode, whereas tasks requiring more time for reflection and deep learning should be in the asynchronous mode. Another study by Gaffas (2023) compared learning experiences of English for finance students in BL and virtual environments and found that different learning platforms used in different learning modes and social interaction can result in different learning experiences. In brief, BL challenges can vary depending on ESP contexts.

2.2 Conceptualising Student Learning Experience in BL and ESP

Student learning experience has been discussed in higher education literature for decades, as there has been a shift from what constitutes good teaching to learning. Studies regarding student learning experience primarily focus on students' perceptions of their own learning (Ertl & Wright, 2008). According to Zerihun et al. (2012), students evaluating their learning experience, such as their level of active engagement in the learning process, can be more constructive than students evaluating the teacher's behaviour or performance alone and can thus promote learner-centred instruction. Additionally, the notion of 'student engagement' is evident in student learning experience literature together with other factors such as 'confidence' and 'motivation' as key drivers of student learning experience (Awidi & Paynter, 2019).

Bouilheres et al. (2020) conducted a study to conceptualise the student learning experience in BL in a Vietnamese higher education context. Four factors related to student learning experience include 'engagement', 'flexibility of learning', 'online learning experience', and 'self-confidence' (p. 3049), many of which overlap with the earlier conceptualisations of student learning experience. In BL, nonetheless, factors related to online learning or using digital tools appear significant for student learning experience. Awidi and Paynter's (2019) study on the impacts of flipped learning on student learning experience demonstrated that online activities and digital technologies influence student learning experiences in terms of their access to information and learning resources, support and motivation, participation and collaboration, assessment and feedback, and knowledge construction. In addition, the teaching and learning platform used in BL can also contribute to the student learning experience. Specific to Microsoft Teams (which is the learning platform in this study), Sobaih et al. (2021) investigated the student learning experience of fully online learning via Microsoft Teams in comparison with social networking sites in an Egyptian university. According to Sobaih et al. (2021), students' overall learning experience was positive for both platforms; however, the undergraduate students in the study also reported limited support from instructors and peers and low participation in course activities in Microsoft Teams.

While there is evidence of research exploring student learning experience in BL and Microsoft Teams in higher education, little has examined student learning experience of BL using Microsoft Teams. Especially in the context of ESP, there is a paucity of studies where Microsoft Teams is implemented in BL. Considering Microsoft Teams has recently integrated a number of AI-powered language learning tools for its education version, e.g. Reading Progress, Insights, Reflect, and Turnitin, this has created an opportunity for English language educators to adopt these tools in their BL ESP course design to enhance student learning experience, and it is thus a worthwhile investigation.

3. METHODS

3.1 Research Context and Participants

The ESP course in this study was English for Economics offered to undergraduate students with a pre-requisite of passing the university's English Foundation course or holding a high English test score used for university admission (due to the level of English required to participate in the ESP course, which was equivalent to B1+ to B2 level in the Common European Framework of Reference for Languages or CEFR). The majority of students enrolled in this course were students from the Faculty of Economics, with some occasional enrolment from non-economics students. Prior to the Covid-19 pandemic, students attended class fully onsite. However, during the pandemic, the university adopted Microsoft Teams as the primary teaching and learning platform. Faculty members and students used the application for meeting calls, access to materials and assignments, as well as participation in teaching and learning activities. After the pandemic, many courses still used the platform, yet there were no clear guidelines on how to employ this platform for BL in English language courses. Therefore, the integration of Microsoft Teams in BL in the ESP course in this study was a pilot study to explore the learning challenges students experience in this context. By having insights into students' learning challenges, the course coordinator and administrator can revise their BL design accordingly.

Table 1 demonstrates the BL design in English for Economics. Since the course objectives were skill-based, i.e. reading, writing, listening, and speaking, the BL design was based on learning these skills in synchronous and asynchronous modes using Microsoft Teams as well as its AI-powered digital tools. During the semester when the study was conducted, 57 undergraduate students registered in the course and were placed into two sections of 32 and 25 students (thereby, section A and section B, respectively). In section A, most students attended the university's English Foundation course. In contrast, all students in section B did not take the foundation course due to their higher English proficiency test scores. Based on this information, it might be implied that section B's English language proficiency level was higher than section A's.

Table 1. BL design of English for Economics.

Course objectives	Synchronous activities	Asynchronous activities
Listening to economic lectures and economic content	• Learn strategies • Listen to lectures/ watch videos • Practise answering questions in Microsoft Teams assignment using 1) OneNote/ Microsoft Word with Microsoft Editor (AI-powered proofreading tool) and 2) MS Form • In-class quiz	• Practise listening at home and submit listening comprehension assignments via Microsoft Teams • Videos in Microsoft Teams for further studies • Students reflect on their feelings regarding the assignment or upcoming quiz using Microsoft Reflect feature

Table 1 continued...

Reading economic texts	• Learn strategies • Reading activities • Practise answering questions in Microsoft Teams assignment using 1) OneNote/ Microsoft Word with Microsoft Editor (AI-powered proofreading tool) and 2) MS Form • In-class quiz	• Practise reading comprehension and submit assignments via Microsoft Teams • Practise reading and pronunciation using Microsoft Reading Progress (AI-powered adaptive learning system for reading and pronunciation) • Videos in Microsoft Teams for further studies • Students reflect on their feelings regarding the assignment or upcoming quiz using Microsoft Reflect feature
Oral presentation and debate on economic issues	• Learn strategies • Brainstorming and discussing research topics • Sharing ideas in Microsoft Teams collaboration space • Mini presentation practice in class • In-class presentations	• Research for in-class presentation • Videos in Microsoft Teams for further studies • Students reflect on their feelings regarding the assignment or upcoming quiz using Microsoft Reflect feature
Writing essays on economic topics	• Learn strategies • Brainstorming and discussing research topics • Sharing ideas in Microsoft Teams collaboration space • Writing practice in Microsoft Teams assignment using 1) OneNote/ Microsoft Word with Microsoft Editor (AI-powered proofreading tool) • In-class quiz	• Research and write essays to submit in Microsoft Teams assignments • Videos in Microsoft Teams for further studies • Students reflect on their feelings regarding the assignment or upcoming quiz using Microsoft Reflect feature

3.2 Research Instruments

This mixed-method study adopted various instruments to explore the learning challenges experienced by undergraduate students in the blended ESP course. By using Microsoft Teams as the BL platform, students' learning data, such as assignment, quiz scores, and their reflections on their learning progress and experience, were recorded by the data analytics application 'Insights' in Microsoft Teams. Moreover, the study also employed questionnaires of student learning experience and learning challenges in the ESP blended learning course, adapted from [Awidi & Paynter \(2019\)](#), [Tiang-uan & Taylor \(2021\)](#), [Zhang \(2021\)](#), and semi-structured focus group interviews to gain insights into students' learning challenges through their learning experiences.

3.3 Data Collection

Prior to collecting data, the faculty, the course instructors, and the students were informed of the research project and asked to provide consent to participate in the research. Once consent had been given, the researcher, who was the ESP course coordinator, activated Microsoft Teams, which was the BL teaching/learning platform in the study. As a course coordinator, the researcher had access to all Microsoft Teams

in this course (since the university granted this permission to all course coordinators) and was responsible for posting all assignments and quizzes in Microsoft Teams for all sections in the BL course. Nonetheless, course instructors were also allowed to supplement additional materials or assignments depending on the needs of students in the section.

Using Microsoft Teams, the researcher employed AI-powered data analytics, Microsoft Teams Insights, which was integrated into the application to retrieve data regarding students' assignments results and their Microsoft Reflect responses. As a learning analytics tool, Microsoft Teams Insights can collect and analyse data quantitatively, including student grades and percentage of task achievement, words mispronounced in Microsoft Reading Progress assignments, and frequency of Microsoft Reflect emotion words chosen by students. At the end of the course, questionnaires were distributed using Microsoft Forms to facilitate the researcher's understanding of students' BL challenges in students' BL experience. There were 22 items ranked on a 1–5-point scale and one open-ended question for students to describe their experiences and challenges in the BL ESP course. Afterwards, semi-structured focus group interviews of 10 student participants were conducted to gain insight into participants' BL challenges based on their BL experience using Microsoft Teams.

3.4 Data Analysis

This study adopted data triangulation to explore students' BL challenges through the lens of student learning experience. Students' data in Microsoft Teams were quantitatively analysed by the learning analytics application, Microsoft Team Insights, in terms of frequency and percentage, e.g., students' average grades, frequency and percentage of Microsoft Reflect responses, and percentage of reading fluency in Microsoft Reading Progress for each student and the average class.

Other sources of data in this study included the data from the students' learning experience survey and focus group interviews. The questionnaire items from the survey were analysed quantitatively using descriptive statistical analysis, whereas open-ended questions were coded using thematic analysis (Braun & Clarke, 2012). The survey data were triangulated with the focus group interview data, which were transcribed and coded thematically. Mixing methods and sources of data provided 'a more detailed and balanced picture of the situation' (Altrichter et al., 2008, p. 147).

4. RESULTS

The results presented in this section are based on various data sources in this study, including Microsoft Teams Insights, questionnaires on students' BL experiences and challenges, and focus group interviews.

4.1 Microsoft Teams Insights

The AI-powered data analytics tool in Microsoft Teams collected and analysed data on class average grade (Figure 1), average grade per assignment (Figure 2), average word per minute, average accuracy rate, and students' submission in Microsoft

Reading Progress assignments (Figure 3), as well as mood trend and top emotion words students chose in Microsoft Reflect (Figure 4). Although the analytics provided an overview of the data, the focus was on challenging tasks where students received lower scores and mood trends where students expressed negative emotions.

In general, section B, where students were exempt from the university's English foundation course, showed higher levels of academic achievements in terms of average grades and Microsoft Reading Progress data. Based on these results, it may be implied that students in section B had fewer academic challenges due to their English language proficiency, or they might be able to cope better with challenges in these ESP language tasks in a BL environment.

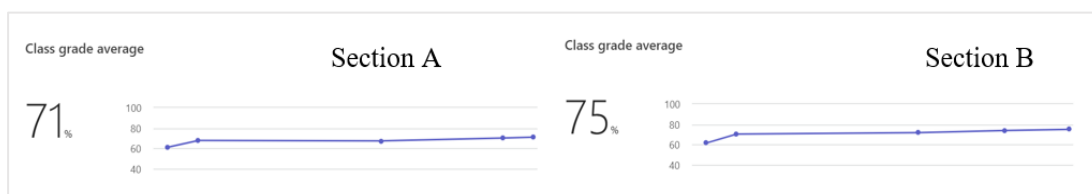


Figure 1. Trends of class average grade.

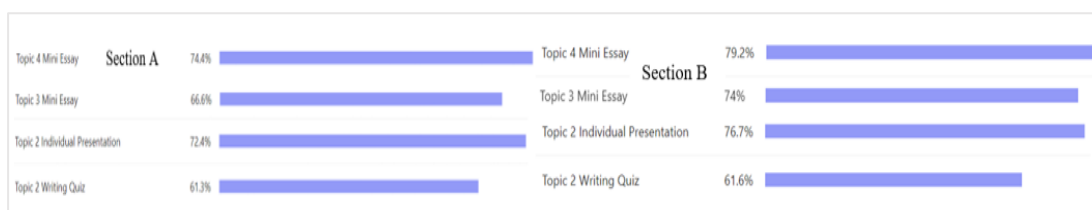


Figure 2. Summary of average grade per assignment.

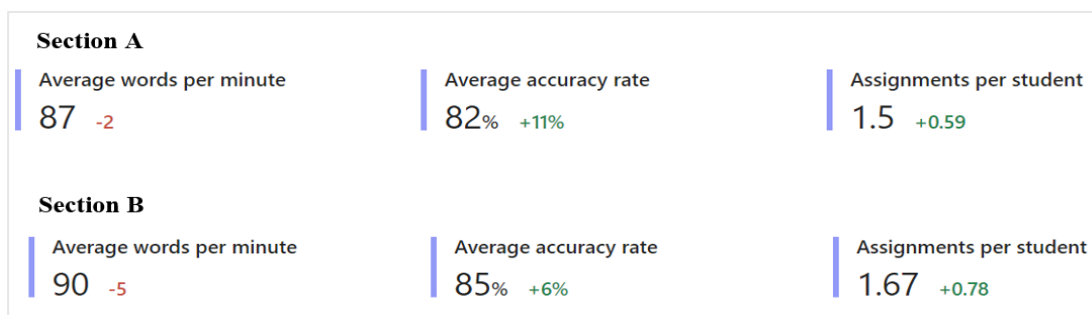


Figure 3. Summary of Microsoft Reading Progress students' data.

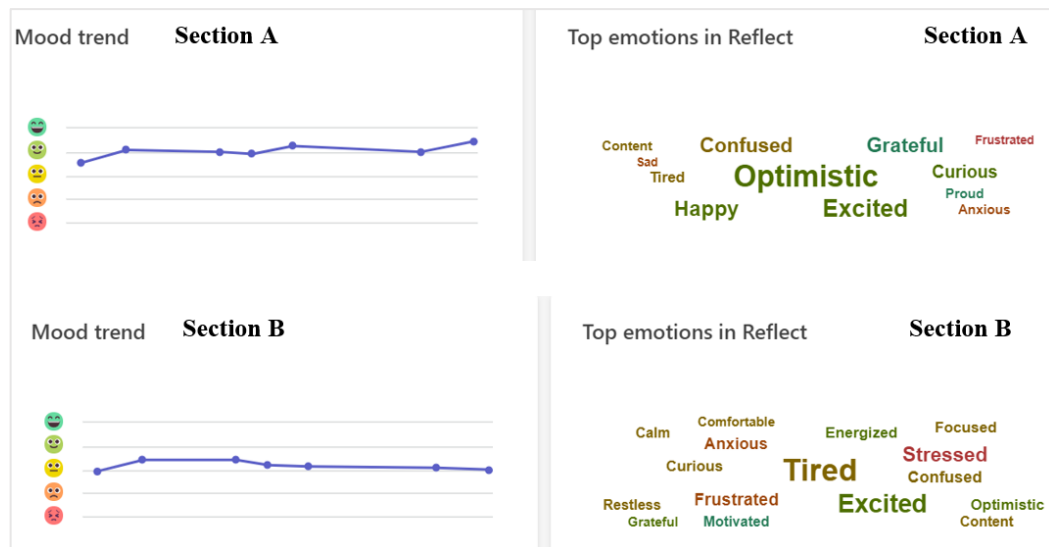


Figure 4. Mood trends and top emotions in Microsoft Reflect.

However, section B's fewer academic challenges, implied from their higher grades, did not appear to align with mood trends and top emotions students chose to reflect. Microsoft Teams Insights data analytics demonstrated a more negative mood trend and negative words, e.g., 'tired' and 'stressed' in section B, when compared with section A in which the mood trend is more positive with more positive emotions such as 'optimistic' and 'grateful' (Figure 4). Despite the dichotomous data, it should be noted that 'excited' was an emotion word rather prominent in both sections. This requires more data from other sources to provide a more comprehensive and detailed picture of the student learning experience and learning challenges in this BL ESP course.

4.2 Questionnaire Results

In addition to Microsoft Teams Insights data, BL challenges and experiences were investigated using questionnaires. Due to students' withdrawal from the course and incomplete questionnaires, the total number of questionnaire responses was 25 in section A ($n = 25$) and 21 in section B ($n = 21$). Table 2 illustrates the results of the questionnaire in terms of students' BL experience in sections A and B. Based on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), section B expressed a more negative BL experience, with lower mean scores in all items. The item with the lowest mean score was 'I feel encouraged by at-home learning activities provided.' in both sections (mean score for section A = 3.96 and section B = 3.10), suggesting that students had the least positive BL experience when doing asynchronous learning activities, possibly due to lack of motivation or support. For section A, students responded to other questionnaire items with a mean score of higher than 4.00 implying a positive learning experience. Section B, on the other hand, scored below 4.00 in all items, with items scoring below the mean score of 3.50 including 'I feel encouraged by in-class learning activities provided' (mean = 3.24) and 'I feel that blended learning mode (in-class and at-home) improves my ability to use English in my specialised discipline, i.e., economics' (mean = 3.43). The low-scored items might be referred to

students' challenges in terms of support through at-home and in-class learning activities and students' improvements in English for economics. For section B, their reflection on knowledge construction seemed to collide with their academic performance results shown in Microsoft Teams Insights learning analytics, where students in section B received higher average grades than those in section A. However, when considering the more negative mood trend in section B, the feeling of being 'less' encouraged by learning activities in the questionnaire items could be linked with this negative mood trend.

Table 2. Students' BL experience.

Questionnaire Items	Sect. A Mean	(n=25) SD	Sect. B Mean	(n=21) SD
I was provided with adequate face-to-face onsite instruction integrated with at-home learning activities.	4.48	0.82	3.90	1.04
In-class lectures are well-presented and easy to understand.	4.48	0.71	3.52	1.21
Online video lectures are well-presented and easy to understand.	4.36	0.76	3.57	0.98
I feel encouraged by in-class learning activities provided.	4.32	0.99	3.24	1.34
I feel encouraged by at-home learning activities provided.	3.96	0.89	3.10	1.33
It was easy to follow this course with a mixture of face-to-face and online learning (i.e., blended learning mode).	4.20	0.91	3.76	1.04
Assessment in Microsoft Teams improves my learning in this course.	4.24	0.93	3.62	1.07
I feel that blended learning mode (in-class and at-home) improves my ability to use English in my specialised discipline, i.e., economics.	4.20	0.91	3.43	1.25

Apart from BL experience items, questionnaire results also presented students' BL challenges, as seen in Table 3. The questionnaire items in this section were negative statements involving BL challenges. The higher the score, the more BL challenges the undergraduate students experienced. The highest mean score, i.e. the most challenging aspect of BL in this study, was 'university's internet connection is poor' (Section A mean score = 4.04, Section B mean score = 4.19). However, when compared to other questionnaire items and the total mean score of 'the use of technology' (i.e., below 3.00), it can be concluded that students did not seem to experience high levels of technological challenges. Similarly, online learning challenges were not prominent amongst the undergraduate students in the BL ESP course, with no mean scores higher than 3.00. On the contrary, social aspects of BL presented the most challenging for students (total mean score for Section A = 3.86, Section B = 3.45), followed by motivation and willingness to learn in the BL ESP course (total mean score for Section A = 3.27 and Section B = 3.33). Interestingly, Section A students generally appeared to experience greater BL challenges than Section B, even though Section A recorded a more positive BL experience, as seen in Table 2. On the other hand, students in Section B had a more negative BL experience but fewer challenges in participating in the BL ESP course, aside from the aspect of

‘motivation and willingness’, where Section B scored similarly to Section A (total mean score for Section A = 3.27, section B = 3.33). This implies that the challenges experienced by Section B were mostly related to motivation and willingness, which might be linked to their negative BL experience data in the questionnaire or their negative mood trend, as shown in Microsoft Teams Insights.

Table 3. Students’ BL challenges.

Aspects of BL challenges	Questionnaire items	Sect.1 Mean	(n=25) SD	Sect. 2 Mean	(n=21) SD
The use of technology	University’s internet connection is poor.	4.04	1.27	4.19	1.03
	My home internet connection is poor.	2.88	1.39	2.29	1.35
	My devices are not updated or not compatible for online learning.	2.56	1.33	2.38	1.40
	It is difficult to apply digital skills.	2.48	1.45	1.95	1.20
	Total	2.99	1.36	2.70	1.25
Motivation and willingness	I would have learned better if I were in a physical classroom.	3.80	1.08	3.57	1.40
	I lack motivation to participate in on-site activities because I need more time to work on tasks.	2.84	1.34	3.33	1.20
	I lack motivation to participate in at-home activities due to my need of learning support.	3.16	1.40	3.10	1.09
	Total	3.27	1.27	3.33	1.23
Social aspects	At-home learning allows less interaction between me and instructor.	3.80	1.08	3.43	1.12
	At-home learning allows less interaction between me and my peers.	3.92	1.00	3.48	1.29
	Total	3.86	1.04	3.45	1.20
Online English learning	I cannot catch up with the lesson because I do not understand the teacher’s pronunciation.	2.64	1.66	2.33	1.20
	I cannot catch up with the lesson because I do not understand the vocabulary.	2.80	1.53	2.29	1.23
	I cannot catch up with the lesson because I do not understand the difficult content.	3.00	1.58	2.43	1.12
	I do not receive adequate feedback for my written assignments.	2.32	1.60	2.52	1.44
	The online materials are confusing and does not help me to learn English.	2.48	1.71	2.71	1.27
	Total	2.65	1.62	2.46	1.25

In the questionnaire, the students were also asked to answer an open-ended question regarding their BL challenges using Microsoft Teams and digital/ AI-powered tools integrated in the application. Instead of reflecting on their BL challenges, many students’ answers were related to their course instructors/ teachers. Table 4 summarises students’ BL challenges through the lens of the student learning experience (Awidi & Paynter, 2019). It was found that teacher’s feedback and knowledge construction were the challenges experienced by the undergraduate students. Whereas students in section A required assistance due to their English language proficiency, BL challenges in section B were more concerned with the teacher’s feedback and teaching style, which students felt could barely help them

improve their English skills. This could be possibly due to section B's higher-level English proficiency. Paradoxically, the challenges in Section B were derived from the ESP content and tasks being too easy for them and not challenging enough to help them improve. Section B students needed more advanced, detailed feedback to fit their higher-level English skills.

Table 4. Summary of students' responses related to their BL challenges.

Students learning experience	Responses
Feedback	• It would help me a lot if you could give more feedback about my writing. (section B) • I need more feedback about writing assignments. (section B)
Critical reflection and knowledge construction	• The instructor in my section still used boring teaching methods. Studying in class didn't really help me to communicate in English. I don't think I received adequate knowledge. (section B) • This course requires quite good English. My English is not as good as others, so at times I find it difficult to complete some assignments. (section A)

4.3 Focus Group Interviews

In semi-structured focus group interviews, students were asked to reflect on the BL experience using Microsoft Teams at a full scale together with digital/ AI-powered tools integrated into Microsoft Teams. Overall, undergraduate students perceived their BL experiences as an opportunity to learn how to use Microsoft Teams and AI-powered tools in the ESP course. The data generated from the interviews also revealed their BL challenges during synchronous and asynchronous modes.

4.3.1 BL challenges in synchronous learning

Emerging themes related to BL challenges during synchronous learning in the ESP course were related to technology, in-class tasks, and teachers' support. First and foremost, the BL challenge mentioned by all participants was poor internet connection. Students struggled to connect to the internet because some in-class activities require collaboration in the digital platform, such as collaboration space in OneNote. They felt that 'collaboration does not work well' (student 10). Moreover, some commented on both 'the internet and application' that were 'very slow' (student 1) and even students used their 'own internet' (using their own mobile hotspot) for real-time features, the application was still 'lagging' and 'confusing' (student7). Specific to AI-powered tools used in onsite class meetings, students were allowed to use Microsoft Writing Editor for grammar checks; however, since many students used tablets, which might not be fully compatible with Microsoft Writing Editor, challenges were also related to limited access to technology recommended for use in the ESP course.

Another issue reported by the students was related to in-class tasks. Interestingly, the research participants who viewed economics English tasks as challenging were 1) students who were non-economic major who exempt from English foundation course and 2) economic major students who had to pass a pre-requisite course prior to entering this ESP course. For non-economic major students, although their English proficiency was sufficient for course enrolment, challenges for them were concerned with English

for economics discourse, such as ‘using economic vocabulary’ and ‘reading economic news’ (student 1). For economic major students, on the other hand, English proficiency seemed to contribute to the challenges of completing in-class tasks. Student 4 stated that ‘the teacher guided well, but you need to have a strong command of English to produce quality work’. In short, the combined elements of BL and ESP led to specific students’ learning challenges.

Due to the aforementioned in-class challenges, students expected teachers to be facilitators in providing technological and academic support. Some students felt that ‘the best way to learn was in class’ (Student 2), where students could ‘receive feedback’ (Student 3), but when ‘teachers spent too much time focusing on teaching’, the feedback on in-class tasks was ‘insufficient’ (Student 3). Although AI-powered tools were allowed in student’s work, e.g. writing, students still preferred ‘face-to-face communication’ to Microsoft Teams chats, as commented by Student 8, ‘we can work together in class, but we need teacher’s feedback and advice in class before we do the work at home’. While some students acknowledged the time constraints for in-class feedback, they pointed out that receiving face-to-face teacher feedback was important. According to the students, as Student 2 suggested in the following excerpt, it was apparent that time constraints contributed to BL challenges in the synchronous mode, when compared to the synchronous mode where students’ challenges differed.

Apart from writing, reading and pronunciation can also be in-class advice, or for listening when we listen together in class, teachers can give some tips, like highlighting key words prior to listening. Feedback should be detailed. If there is not enough class time, we can have online [synchronous] meetings to go through work together.

4.3.2 BL challenges in asynchronous learning

During focus group interviews, participants discussed their learning challenges when they did Microsoft Teams assignments outside class time. Interestingly, technology, learning tasks, and teacher support were also challenges in asynchronous learning, although the complexity of asynchronous learning challenges could lie in the fact that students were working independently anywhere they chose to. As the place and time of learning could depend on individual students, students might choose to work late evenings or when they might not be able to interact with their peers or their teachers and receive instant responses. In terms of using technology, students pointed out some obstacles, especially in using AI-powered tools in this ESP course, which they had no prior experience with. For instance, in completing Microsoft Reading Progress assignments, students raised issues such as ‘application requiring more internet bandwidth’ (Student 5) and ‘confusing feedback’ (Student 9) provided by AI, for instance, ‘how to’ pronounce words correctly rather than ‘guessing and trying’ (Student 9). For writing tasks, students also found challenges in using AI-powered Microsoft Writing Editor and Turnitin, as they were sceptical about the ‘reliability’ and ‘accuracy’ of AI (Student 10). Especially, when working independently, these AI-related challenges could prevent students from engaging in their learning.

Apart from technology, learning tasks students were ‘required’ to do at home also became problematic. In assessing students’ learning in the BL ESP course, students must complete assigned tasks both in class and at home. However, many participants said that there should be ‘fewer’ at-home assignments, and ‘everything

should be complete in class' since 'many at-home tasks seemed to be repetitive' (Student 9). Especially for students exempt from the English foundation course, they felt that doing these language learning tasks might allow them to have 'a constant practice' but 'did not help to improve' their English skills (Students 9, 2). It seems that the challenges of learning tasks for these high-level students did not derive from language difficulties, but rather the tasks being insufficiently challenging for them.

Although the ESP content in the course was designed for B1+ to B2 CEFR level, the course instructors could add additional content such as more advanced vocabulary, grammar, or learning tasks to adapt to students' needs. In asynchronous learning, students emphasised the importance of the teacher's advice which could help them overcome challenges in performing learning tasks which are too challenging for lower proficiency students and insufficiently challenging for higher proficiency students. In the BL ESP course, only students with higher proficiency commented on the lack of teacher support. While many of them found AI-powered tools useful, they still wanted 'more detailed' feedback than AI to help them write in the 'academic' discourse (Student 3). Working on their assignments asynchronously, students struggled with the teacher's short comments in Microsoft Teams, and felt that 'face-to-face feedback was better than [Microsoft Teams] chats' (Student 8). Moreover, advice could be given 'along the way' (Student 10) to prevent students from feeling 'isolated' (Student 6).

5. DISCUSSION

The results of the study show that there were both similarities and differences in BL challenges experienced by the undergraduates in the ESP course. While internet connection is the most challenging issue, in general, students in both sections did not seem to be too anxious about the use of technology or online learning. This could be due to students' prior online learning experience during the Covid-19 pandemic, which prepared them for integrating technology. Despite some obstacles during their BL experiences, students in both sections completed their BL tasks in Microsoft Teams, with a satisfactory average grade of 71-75%, equivalent to a B in the ESP course.

Current literature suggests that the main challenges of BL involve both external (e.g. technology) and internal factors (e.g. student motivation) (Duong & Nguyen, 2021) and that BL platforms or applications can help resolve student motivation issues (Pivneva et al., 2023). In this study, however, students' BL challenges appeared to be more linked with internal factors. Data of mood trends and emotion words retrieved from *Insights* demonstrate that students in section B, where they felt 'tired' and 'stressed', had more negative experiences. In general student motivation to obtain high grades still existed (as seen in class average grades), but it required their effort and stress to achieve high scores. Looking at the questionnaire data, section B also saw lower scores in terms of BL experience, thus referring to more negative BL experience. Surprisingly, compared to the results of BL challenges, section B scored lower than section A. In other words, negative experiences do not necessarily coincide with higher challenges. In this study, higher-proficiency students faced lower levels of challenges and were able to deal with BL and academic learning tasks; nevertheless, students had negative feelings towards low-challenge tasks, resulting in their lower levels of motivation. The lack of motivation caused by low-challenge tasks in BL provides new

insight into ESP BL challenges, which were primarily seen as a result of ineffective BL platforms in previous studies (Gaffas, 2023; Pivneva et al., 2023).

In this study, ESP elements were crucial factors contributing to students' BL experience and challenges, e.g. learning tasks and learning support (Zhang, 2021) and language use in ESP (Stanišić et al., 2022). Qualitative data from the questionnaire and focus group interviews show that students ultimately placed more emphasis on their ESP learning than on using innovative technologies. By having a BL approach, they perceived teachers as the main element distinguishing BL from asynchronous online learning. Teacher support and feedback can significantly enhance students' positive learning experience, especially face-to-face. Moreover, students also expect teachers to provide an appropriate balance between synchronous and asynchronous learning tasks (Perveen, 2016). While literature suggests that digital tools or platforms can contribute to students' BL experience (Awidi & Paynter, 2019) and learning challenges (Sobaih et al., 2021), the results in this study highlight the significance of teacher support which responds to students' needs beyond what AI or technology can offer. The support students receive from teachers can subsequently increase students' motivation to participate in BL.

In the BL ESP course, teacher support can refer to two aspects of technological support and ESP learning support. Although students might be perceived with a higher level of technology acceptance of AI (Taylor et al., 2023), they still require support from teachers, especially when technology or AI cannot yet perform complex human tasks, e.g. advice on complex language points. ESP teachers or course designers must define these complex learning tasks and design the tasks to facilitate students' BL both synchronously and asynchronously. Moreover, teachers could adopt AI-powered tools such as Microsoft Reflect to monitor students' BL experience and well-being to help students overcome BL challenges. By providing academic support and facilitating students' academic needs beyond the designated course contents, not only do teachers increase students' learning challenges to advance to the next level, but they can also provide emotional support and build relationships with students, the roles that AI or technology cannot yet replace human teachers fully (Ji et al., 2022).

6. CONCLUSION

This study explores BL challenges of EFL undergraduate students of mixed-level English proficiency in an ESP course at a Thai public university. While certain BL challenges, such as poor internet connection and at-home learning activities, were shared by student participants, technological challenges were perceived as less important than ESP learning challenges. Although ESP learning challenges were thought to be overcome using digital technology or AI-powered tools, it appeared that AI technology could not provide a total solution to students' needs. Since this study focuses only on one specific ESP setting, BL challenges found in the study could differ from other ESP contexts and may not be generalised.

While challenges are often seen as an obstacle to learning, this study shows that learning challenges can be a positive construct and require a revisit in terms of conceptualisation. Understanding the complexity of learning challenges in various BL ESP contexts, researchers, course instructors and administrators can plan the BL ESP

course design to overcome the specified learning challenges. Since this study reflects only one specific BL ESP setting, more empirical studies related to BL challenges in EFL/ESL and ESP contexts are needed for future research. Especially with today's rapid development of AI, blended learning is an everchanging phenomenon, as are students' learning challenges.

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