Towards a Principled Approach to Blended Learning: Investigating Moodle-Based English-Medium Classes for Chinese University Students

Edith M. Y. Yan[1,*] and Chuan Qin[2]
[1]BNU–HKBU United International College
[2]Guangxi University

Abstract

This study investigated the utilization of various types of Moodle course materials (including resources and activities) by 190 Chinese students from five classes of an English-medium instruction (EMI) course, their views regarding the utilization, and their academic achievements. It aimed at finding out the types of Moodle course materials positively associated with students' learning achievements, and identifying the specific features and practices with the course materials that might contribute to the learning effectiveness. Data were collected from an in-class survey, focus group interviews, and retrieval of Moodle activity logs and grade reports. Of the types of Moodle course materials that were found to have students' access frequencies significantly correlated with their course total scores, comments from focus-group data that were related to the effective utilization were analysed using an inductive approach. Then the emergent themes were mapped on to the headings "appropriate resources and tools," "integrative multimodal tasks," and "sustainability beliefs and practices" for establishing guiding principles for designing blended-learning content courses for second/foreign language learners. This article suggests that EMI course

*Corresponding author: Edith M. Y. Yan. E-mail: edithyan@uic.edu.cn

instructors consider offering learning scaffolding through various means and providing supports when students are interacting with the learning management system, in particular when they are dealing with assessments.

The rapid expansion of English-medium academic courses/programmes at various educational levels in English-as-a-foreign-language (EFL) contexts over the past two decades has made the engagement with *English-medium instruction* (EMI) a major research topic in the field of English language teaching (Macaro et al., 2018; Pecorari & Malmstrom, 2018). EMI involves an educational setting where EFL learners are expected to use English for instructional purposes to learn a content subject other than English and where English is expected to be learned in an incidental way (Pecorari & Malmstrom, 2018). Some instructional accommodations may occur in an EMI classroom to guarantee learners' comprehension and understanding of content (Aguilar, 2017), which may include using a combination of digital tools online or face-to-face to scaffold English language learners' acquisition of content and academic English language (Andrei, 2017; Hernandez-Nanclares & Jimenez-Munoz, 2016).

Blended learning, as a combination of face-to-face and online teaching (Sharma, 2010), could enable greater versatility and flexibility in EMI teaching and learning. The delivery of the online part of a blended learning course typically involves a Learning Management System (LMS), such as Moodle or Blackboard, and comprises the use of synchronous and asynchronous electronic tools (Sharma, 2010). Whereas large scale studies of blended learning courses have been conducted over a range of second/foreign language programs, such as, lower-division language programs (Anderson, 2018), English-for-Academic-Purposes, English-for-Specific-Purposes and general English programs (Tomlinson & Whittaker, 2013); relatively little work has been done on examining blended learning in EMI courses for EFL learners. We propose that models for blended language learning can serve as a basis for similar work in EMI.

Guiding principles or pedagogical con-

siderations have been proposed for how to deliver the various components of a blended-learning language course in a principled manner based on theoretical frameworks (e.g., Hinkelman, 2018; Thornbury, 2016), authors' experiences (e.g., Kervin & Derewianka, 2011; Sharma, 2017), case studies or ethnographic studies (e.g., Lázár, 2016; Whittaker, 2014). Yet the empirical data from language learners to support the development of guiding principles for blended learning were limited. Lacking input from learners, the guiding principles may be confined merely to answer the fundamental questions of *what* to blend and *how* to blend in delivering blended learning courses (Rossett et al., 2003) but not the question of *how well* these online tools and tasks could support student learning. Therefore, the present study aimed to expand the notion of a principled approach to blended learning for second/foreign language learners by providing evidence from Chinese students' perspectives and their learning practices related to Moodle-based EMI courses.

Established Principles for Blended Language Learning

Due to the flexible, context-dependent nature of a blended learning approach, it has generally been agreed that there is no single optimal blend (Sharma & Westbrook, 2016; Whittaker, 2013). Nevertheless, attempts have been made to identify the guiding principles and practical considerations for developing a blended-learning language course in order to avoid "a mish-mash" of course components which may result in learners suffering the "worst of both [face-to-face and online] worlds" (Sharma & Barrett, 2007, p. 8). These guiding principles may focus on evaluating the language learning potentials of e-learning materials (e.g., Kelvin & Derewianka, 2011; Lázár, 2016; Thornbury, 2016), or emphasize the critical factors for successful implementation of a blended learning course (e.g., Hinkelman, 2018; Sharma, 2017; Whittaker, 2014), or address the step-by-step administrative practices for creating a blended learning course (e.g., Hinkelman, 2018; Sharma, 2017; Whittaker, 2013).

Although evaluative checklists on e-learning materials could help teachers focus on certain dimensions that otherwise may be neglected, it has been pointed out that these checklists may overemphasize "the features that can be easily assessed" and ignore "some crucial issues to be considered in teaching and learning" (Nimehchisalem & Mukundan, 2014, p. 291). Therefore, models of blended language

learning should be "more comprehensive and inclusive in integrating all modalities, venues, and aspects of learning" than the focus on the use of technology in the foreign/second language classroom (Hinkelman, 2018, p. 16). To build on the concepts for blended language learning, key considerations or advice for successful implementation of blended language learning have been proposed by Whittaker (2014), Sharma (2017), and Hinkelman (2018). Considering the differences and commonalities from these three sources may produce a more comprehensive list of guiding tenets for a principled approach to blended language learning.

Whittaker (2014) has collated seven themes (course development, integration/complementarity, tools, tasks, scaffolding, roles, and training) from the author advice provided in case studies involving blended learning in various contexts of English language teaching in Tomlinson and Whittaker (2013). These themes can be summed up as four areas of emphasis (the iterative nature of course design, the links between face-to-face and online work, the adoption of correct tools and tasks, and the need to support teachers and learners on how to teach/learn in blended learning environments), which in turn serve as "the starting point" rather than building on the existing advice or principles in the litera-

ture (Whittaker, 2014, p. 23).

Sharma (2017) suggests four critical factors to ensure the success of a blended learning course after he has identified the challenges that institutions and teachers face. These factors are appropriateness, complementarity, attitude, and training. According to Sharma (2017, p. 171), appropriateness means that the activities selected would be "appropriate to develop fluency in the classroom and to work on critical thinking skills"; complementarity refers to "the genuine integration of the in-class and online elements"; attitude links to the positive beliefs that teachers hold regarding the efficacy of blended learning, which they transmit to their learners; and training includes both teacher and student training in the principles of blended learning and the use of technology.

Hinkelman (2018, following Gruba & Hinkelman, 2012) identified four considerations (purpose, appropriateness, multimodality, and sustainability) in regard to the "dynamic complex" variables in blended language learning (p. 387). Each consideration consists of a series of related concepts which may help to expand the understanding of the consideration in the blended language classroom. According to Hinkelman (2018), purposeful blending of technologies in a language programme should be principled, empowering, col-

laborative, accountable, and assessable; appropriate blending of technologies should be sensitive, configurable, accessible, aligned, and authentic; multimodal blending of technologies should be balanced, varied, authorable, thematic, and comprehensible; and sustainable blending of technologies will be incremental, supported, repeatable, transferable, and committed. These dimensions set up as an evaluative framework for blended language learning are not about "how to integrate electronic tools into classrooms, but how to integrate a culture of collaboration and continuous improvement into classroom practice" (Hinkelman, 2018, p. 397).

From what has been summarized above, it is clear that while Whittaker (2014) and Sharma (2017) provide some basic principles for successful implementation of a blended learning course, Hinkelman (2018) offers related concepts for manifestation of these principles. The key considerations or advice proposed by the three sources can further be consolidated into four headings: purposeful course development, appropriate resources and tools, integrative multimodal tasks, and sustainability beliefs and practices. Table 1 compares the considerations or advice provided by Whittaker (2014), Sharma (2017) and Hinkelman (2018) under the four key themes.

Table 1

Key Themes for Successful Implementation of a Blended Learning Course and the Elaborations from Whittaker (2014), Sharma (2017), and Hinkelman (2018)

Key themes	Elaborations from sources		
	Whittaker (2014, p. 23)	Sharma (2017, pp. 171–172)	Hinkelman (2018, pp. 10–16)
Purposeful course development	"the iterative nature of course design and the fact that building a blend is a gradual process"		Purposeful blending of technologies should be principled, empowering, collaborative, accountable, and assessable.
Appropriate resources and tools	"the importance of choosing the correct tools and designing tasks accordingly"	The activities selected would be "appropriate to develop fluency in the classroom and to work on critical thinking skills."	Appropriate blending of technologies should be sensitive, configurable, accessible, aligned, and authentic.

Key themes	Elaborations from sources		
Integrative multimodal tasks	"the importance of the links between the f2f and online work"	"the genuine integration of the in-class and online elements"	Multimodal blending of technologies should be balanced, varied, authorable, thematic, and comprehensible.
Sustainability beliefs and practices	"the need to train both teachers and learners on how to teach/learn on a blended learning course and the need to support the latter by scaffolding activities"	Teachers should hold positive beliefs about the efficacy of blended learning which they transmit to their learners.Both teachers and learners should be trained in the principles and techniques of blended learning.	Sustainable blending of technologies should be incremental, supported, repeatable, transferable, and committed.

The list of considerations or advice given in Table 1 on adopting a principled approach to blended language learning, as Whittaker (2014) has pointed out, is quite comprehensive in its entirety, yet the learners' voice is silent due to the absence of examples from learners' practices to illustrate the considerations or advice. Although Sharma (2017) has drawn from typical student feedback to identify the challenges in setting up a blended learning course, no clear examples or sources were provided. Therefore, it is worthwhile to investigate learners' practices and opinions in blended learning courses in order to supplement or enhance existing guiding tenets on adopting a principled approach to blended language learning.

On the other hand, not all LMS resources or activities have the same influence on EFL learner practices. For example, through a survey and focus groups it was found that EFL university students ($N = $ 23) in Japan were more appreciative of Moodle forums for enabling comprehensible output and interaction and Moodle quizzes for checking understanding of terms and concepts, but less appreciative of Moodle glossaries for limited recycling and processing of vocabulary (Hirschel, 2012). In addition, a case study on individual German learners ($N = 2$) showed that learners selected online tools and activities according to their learning style and objectives—the learner who wanted to focus on form and language practice favored the

use of asynchronous tools, such as blogs and forums; whereas another who focused on authentic communication in the target language preferred the social elements of learning tools for commenting, questioning and responding to other participants (Stickler & Hampel, 2010). Therefore, calls have been made for identifying specific features of blended instruction that have positive associations on learning outcomes (Thornbury, 2016; Wu, 2015). It would be worthwhile to find out the types of LMS resources and activities that may positively be associated with students' learning achievements and identify the specific design features and practices that may contribute to the learning effectiveness.

The Current Study

Prior work with regard to blended learning for EFL learners in higher education focused largely on learning English as a second/foreign language rather than learning in English as a second/foreign language, a gap in the research given that the EMI has become "a growing global phenomenon" in higher education (Macaro et al., 2018, p. 37). The aim of the current article is to explore how established principles for blended language learning can be extended to EMI contexts by drawing upon inputs from EFL learners for how LMS resources and activities may support their learning of content subjects in English. The present study investigated the utilization of various types of Moodle course materials (including resources and activities) by Chinese students from five different classes of an English-medium course, their views regarding the utilization, and their learning achievements. Specifically, two research questions were formulated:

RQ1: What are the relationships between students' access frequencies for each type of Moodle course materials and their academic achievements?

RQ2: For the types of Moodle course materials with students' access frequencies significantly correlated with their course total scores, what are the features of the learning activities mediated through these Moodle course materials that enhance or hinder the effective utilization of the online materials?

Only the types of Moodle course materials whose students' access frequencies were significantly correlated with the course total scores were included in identification of features related to the effective utilization of the online materials because the instructional practices associated with this set of Moodle materials were supposed to be better designed and developed for supporting student learning.

Methods

Participating Classes

A total of 190 Science and Technology students from five classes of an interdisciplinary course on *Language, Media and Culture* (LMC) in an English-medium university in China participated in the study. The classes were taught by different instructors with various degrees of blended learning in the second semester of 2016-2017. The assessment tasks for the course included quizzes, a multimedia project, a group investigation project, and an individual written report. There was no final exam for the course. Following the syllabus, instructors incorporated various amounts and types of resources (such as URLs to other websites, word/PDF/PowerPoint files, and video files) and activities (such as assignment, feedback, quiz, forum, glossary, wiki, database, and scheduler) in their Moodle course pages. Table 2 presents the Moodle course materials employed in the participating classes. As shown in Table 2, the instructors incorporated three to nine types of Moodle course materials in their course page, and the mean total frequency of access of the Moodle course materials per student ranged from 150.0 (SD = 108.0) in Class A to 956.8 (SD = 248.9) in Class E.

Table 2

Moodle Course Materials Employed in the Participating Classes

Participating class	Mean total frequency of access per student of the Moodle course materials (SD)	Resources				Activities						
		Link to another location on the Web (excluding videos)	Word, PDF or PPT files	Video files or links to videos	Assignment (including assignments submitted to Turnitin & Panopto)	Feedback	Quiz	Forum	Glossary	Wiki	Database	Scheduler
A (n = 39)	150.0 (108.0)[a]		√		√			√				
B (n = 43)	225.8 (88.6)		√	√	√							
C (n = 39)	359.5 (115.4)[b]		√		√	√	√					
D (n = 33)	400.5 (143.3)	√	√	√	√	√	√	√		√		√
E (n = 36)	956.8 (248.9)	√	√	√	√	√	√		√		√	

[a] Three outliers were excluded. [b] One outlier was excluded.

The course LMC was chosen as the main site for data collection because it was offered in multiple classes to Year-2 Science and Technology students in the semester. Through one course only, we were able to recruit a sufficient number of student participants, as well as minimize the influence of context-related confounding variables (such

as, variations of disciplinary practices among participants). Year-2 students were preferred as participants of the present study because compared to Year-1 students, they might become accustomed to LMS activities and assessments; and compared to the third and the fourth years of study, course instructors might have more options to interact and motivate them as the course schedule was less tight.

Data Collection

The semester consisted of 14 teaching weeks. Data were collected by surveying the students in class in Weeks 8–9, conducting focus group discussions twice with a total of 22 students in Weeks 4–5 and Weeks 11–12, retrieving the Moodle activity logs from Week 1 to Week 15, and collecting the grade report of each class at the end of the semester.

The questionnaire, which was administered by the authors in class, aimed to collect students' background information (including their native language, cumulative GPA, English course grade in the previous semester, and average frequency of logging onto Moodle homepage) and their learning behaviours related to the course (such as, motivation level and average time spent on studying the course), as well as their consent to release the assessment scores and Moodle logs for the study. Except for the item seeking for respondents' consent, all question items were closed-ended. Voluntary participation was ensured when administering the survey. Altogether 190 valid questionnaires were collected out of 210 copies distributed to the five participating classes (a response rate of 90.5%). Responses to the questionnaire items are summarized as participant characteristics in the Results section.

Two interview protocols were devised to collect in-depth opinions from focus groups about their use, problems encountered in the utilization, and attitudes toward the various types of Moodle course materials. The language issues that participants encountered online and in the classroom were also solicited. The questions related to this study are listed in the Appendix. In the sampling process, five students were randomly selected from the student list of each class and invited to participate in the focus group discussions. When a student declined the invitation, another randomly-selected student was invited immediately. At the end, a total of 22 students (four to five students from each class) agreed to participate in the focus groups out of 85 invitations given (a response rate of 25.9%). All of them had participated in the questionnaire sur-

vey. Five focus groups were formed, one from each class. Written informed consent for participating in two audio-taped focus-group discussions at around Week 4 and Week 11 was obtained from all individual participants prior to the first round of focus groups. The focus group discussions were conducted in Chinese and audio recorded by the first or the second author and a research assistant, who were native speakers of Chinese.

The Moodle activity logs, course total scores and course final grades of the 190 survey respondents were retrieved at the end of the semester with their consent, which were equivalent to 90.5% of the total students in the five participating classes.

Data Analysis

Since there were variations among the classes in terms of how the course was delivered and the exact format of each assignment task given to students, the access frequencies generated from the Moodle log of each class (after removing the outliers superscript) and the total scores obtained from each grade report were first converted to their corresponding standardized values (z-scores) of each class before being used for statistical analysis.

To answer RQ1, Pearson correlation coefficients were computed between the z-scores of access frequencies for each type of Moodle course materials and the z-scores of course total scores to determine any significant correlations.

To answer RQ2, transcribed data of focus group discussions (which were in Chinese) were independently reviewed by the first and the second authors to identify any comments related to the enhancement or hindrance to effective utilization of the types of Moodle course material identified in RQ1. Any discrepancies between the two authors in the identification of comments would be reviewed again and resolved by consensus. Then, the identified comments related to each type of Moodle materials were entered into a separate Excel spreadsheet for recording the number of comments for that particular type of Moodle materials. At the same time, all identified comment were sorted into enhancement or hindrance to effective utilization (i.e., positive or negative comments) and entered into two spreadsheets, one for positive comments and another for negative comments. The comments on each spreadsheet were read through separately by the first author for any emerging themes. Then the data was reviewed a second time to make adjustments to the initial themes and combine some simi-

lar themes. After that, data were re-read to sort into these categories of themes. Each comment could only be sorted once by assigning it to the most appropriate theme. Once all comments were sorted by the first author, the second author reviewed the classification of comments for the purpose of calibration. Any classification discrepancies were resolved by consensus between the two authors who would reconsider through the original transcript for the most appropriate theme.

Each comment was labelled for easy retrieval and identification with information of enhancement/hindrance to effective utilization, the type of Moodle materials, the first/second focus group, and individual participant identification. For example, a comment with the label, *enhan-video-FG1-E03*, indicates that the comment was given by the participant, *E03*, of Class E during the first focus group (*FG1*) about the effective utilization (*enhan*) of Moodle video resources (*video*) for learning.

Results

Characteristics of the Participants

The 190 student participants were all native speakers of Chinese. They were mostly female (54.7%) and in the second year of study (98.9%). Most of them reported in the questionnaire survey that their motivation for studying the course was moderate to moderately high (86.1%), the average time spent on studying the course per week was 2.0 hours or less (86.0%), the average frequency of logging onto Moodle homepage was one or more than one time a day (80.6%), the final grade of their English course in the previous semester was between B+ to C+ (73.3%), and their cumulative GPA (out of 4.00) was between 2.50 and 3.49 (84.4%). Based on the estimates from focus groups, the students could generally comprehend 70%–90% of teacher talk during the face-to-face lectures and 50%–90% of the content of course materials without using any comprehension aids.

In addition, the course final grade of each participant was retrieved from the grade reports of their classes. Table 3 compares the course final grades achieved by all the participating students ($N = 190$) with those obtained by the focus group participants ($n = 22$). As can be seen, the grade distribution of the course for the focus group participants was close to that for the whole participating population, even though the response rate to the focus group invitation (25.9%) was not high.

Table 3

Grade Distributions of Language, Media and Culture for all Participating Students (N = 190) and for Focus Group Participants (n = 22)

Grades	All participating students	Focus group participants
	Frequency (percent)	Frequency (percent)
A/A-	19 (10.0%)	3 (13.6%)
B+/B/B-	92 (48.4%)	9 (40.9%)
C+/C/C-	66 (34.7%)	9 (40.9%)
D/F	13 (6.8%)	1 (4.5%)
Total	190 (100%)	22 (100%)

Research Question 1

Pearson correlation analysis showed that weak to moderate, positive and statistically significant correlations were found between the z-scores of course total scores and the z-scores of access frequencies for Moodle Word/PDF/PPT resources, $r(172) = .19$, $p < .05$; video resources, $r(102) = .24$, $p < .05$; assignment activities, $r(173) = .23$, $p < .01$; feedback activities, $r(97) = .34$, $p < .01$; and quiz activities, $r(100) = .50$, $p < .001$; but no significant correlations were found between the z-scores of course total scores and the z-scores of access frequencies for Moodle link resources, forum activities, glossary activities, wiki activities, database activities, and schedular activities at $p \leq .05$. In other words, students who viewed more frequently the Word/PDF/PPT resources, video resources, assignment activities, feedback activities, or quiz activities tended to get higher total scores for the course.

Research Question 2

Regarding the focus group data about the effective utilization of the five types of Moodle course materials, 103 positive comments and 109 negative comments were identified. Table 4 lists the breakdown of positive and negative comments into the five types of Moodle course materials. It can be seen from Table 4 that most of the comments were related to the use of Word/PDF/PPT resources (40.6% of total comments) and the participation in feedback activities (29.7%). Repeated use of certain phrases and expressions by the students in the comments suggested 12 themes associated with the positive evaluation of the Moodle materials and another 12 themes with the negative evaluation. Data were then sorted

into these categories. Tables 5 and 6 present the comment categories according to these themes, example quotes and the frequency of comments in each of the categories.

Table 4

Frequency of Comments Identified from Focus Group Discussions about the Effective Utilization of Moodle Word/PDF/PPT Resources, Video Resources, Assignment Activities, Feedback Activities and Quiz Activities

Moodle course materials	Frequency of positive comments (percent)	Frequency of negative comments (percent)	Frequency of total comments (percent)
Word/PDF/PPT resources	46 (44.7%)	40 (36.7%)	86 (40.6%)
Video resources	9 (8.7%)	2 (1.8%)	11 (5.2%)
Assignment activities	10 (9.7%)	23 (21.1%)	33 (15.6%)
Feedback activities	33 (32.0%)	30 (27.5%)	63 (29.7%)
Quiz activities	5 (4.9%)	14 (12.8%)	19 (9.0%)
Total	103 (100%)	109 (100%)	212 (100%)

Table 5

Positive Comments from Focus Group Discussions Related to the Effective Utilization of Moodle Word/PDF/PPT Resources, Video Resources, Assignment Activities, Feedback Activities and Quiz Activities

Positive comment theme	Example quote (translated from Chinese)	Frequency of comments (%)
1. Online elements assisting comprehension of in-class lectures or vice versa	For example, when listening to the teacher talking about the ppt in class—the teacher lectures above and we listen below—it is easier to be distracted. But the teacher will let us find some pictures and videos [as assignments]. You need to analyse and think about them by yourself. Then you get more involved [in the learning process]. *(enhan-assigt-FG2-E29)*	19 (18.5%)
2. Providing in-class feedback or connections between online activities	As for the voting [feedback activity], you have to finish that vote before you are allowed to do a quiz. ...... If you don't do that vote, you won't be able to do that quiz. Then you cannot get any points, so you'll have to vote. (*enhan-feedbk-FG2-E03*)	14 (13.6%)

Positive comment theme	Example quote (translated from Chinese)	Frequency of comments (%)
3. Establishing pre-study or revision routines	I feel that it is sometimes useful to let us preview [the lecture material]. ……Indeed, the efficiency of comprehending the lecture on the next day is much higher. *(enhan-word-FG1-B04)*	14 (13.6%)
4. Able to acquire practical skills or knowledge	The skills are learning to ask questions [in the feedback activity]. If you are in class, you should also pay attention to some points that the teacher has said. You must be able to think about it and be able to ask some questions, and you must concentrate on listening to lectures. *(enhan-feedbk-FG2-C42)*	11 (10.7%)
5. Online resource format compatible with online translation tools	I use Google Chrome, and then it has a translation plug-in. When you just put a mouse on it, it's all translated into Chinese. *(enhan-word-FG1-E03)*	10 (9.7%)
6. Online resources with a suitable difficulty level in terms of language and content	It's okay [regarding the English language]. I think, as for the vocabulary items, if you look up the words, you will know their meanings. *(enhan-word-FG1-C42)*	9 (8.7%)
7. Achievable online tasks	It's just that the question she posted on iSpace [Moodle] is an inspiring question raised after her teaching, so that everyone can openly think and discuss anyway. There is nothing right or wrong, so I think I should be able to complete all. *(enhan-feedbk-FG2-D37)*	7 (6.8%)
8. Online activities fostering positive collaboration in class	At the beginning of each class, she [the teacher] will select some questions we posed in the previous lesson [via the feedback activity] and display them on the ppt. Then the students will discuss them. It is equivalent to raise some classic questions and let everyone work on or think. I think this is a good interaction. *(enhan-feedbk-FG1-C33)*	7 (6.8%)

Positive comment theme	Example quote (translated from Chinese)	Frequency of comments (%)
9. Well-organized course pages	I think she [the teacher] divides the sections pretty clearly. Each section [on the course page] is one clear section. For example, that section is about assignments, and then there are only assignments. The lecture notes section has only lecture notes. Then each section is clearly divided. *(enhan-assigt-FG2-C16)*	6 (5.8%)
10. Alternative channels for submission of assessments	Right. The teacher also said the biggest file [for uploading] is 1GB. Sometimes our video without compression may be, say, 2GB. Then we have to upload it directly to Youku. Then we will send the link [to the teacher] and let the teacher go to Youku to watch our video. *(enhan-assigt-FG2-A31)*	3 (2.9%)
11. Sparing time for online activities to be completed in class	Because her class lasts 50 minutes, she will usually deliver the lesson up to 46 or 47 minutes and leave three minutes for everyone to write feedback. I think it is quite sufficient in time. *(enhan-feedbk-FG1-C33)*	2 (1.9%)
12. Assessment tasks available early online	……I think it is the best for her [the teacher] to make available [all assessments] in this semester, so I will know what can be arranged by myself. If she makes it available only when it gets to the time, in case I am occupied with other things during the time, I will feel very busy. *(enhan-assigt-FG2-C05)*	1 (1.0%)
		Total 103 (100%)

Table 6

Negative Comments from Focus Group Discussions Related to the Effective Utilization of Moodle Word/PDF/PPT Resources, Video Resources, Assignment Activities, Feedback Activities and Quiz Activities

Negative comment theme	Example quote (translated from Chinese)	Frequency of comments (%)
1. Online resources too difficult in terms of language or content	But those videos are really those that speak too fast, and then you will not understand what they say. *(hind-video-FG2-D38)*	35 (32.1%)

Negative comment theme	Example quote (translated from Chinese)	Frequency of comments (%)
2. Insufficient guidance or knowledge to accomplish the online task	For example, the group discussion in class is not efficient, only everyone chatting. In the end, nobody can decide what to submit. Finally, [we have to] submit [the answers] the next day. *(hind-feedbk-FG2-D09)*	12 (11.0%)
3. Unable to submit or complete assessments	Sometimes the [online] system is not very good, or you don't know how to use it. So, you cannot upload [the assignment]. There is such a situation. *(hind-assigt-FG2-D33)*	10 (9.2%)
4. Lack of teacher feedback or incentive for online participation	Indeed, at the beginning, I submitted [the feedback answers] when I had no other things to do. Later, I was occupied with too many things and the feedback activity seemed not to contribute to much points, [so I didn't submit the answers]. *(hind-feedbk-FG2-D38)*	10 (9.2%)
5. Misalignment between online resources and assessments	In fact, the materials she [the teacher] uploaded to iSpace [Moodle] are not much related to the lectures. She only went through a few questions [we raised about the online materials], which have nothing to do with the quizzes. *(hind-feedbk-FG2-D33)*	8 (7.3%)
6. Disorganized course pages	I think the LMC course page is too cumbersome and complicated. Sometimes, for example, I'm looking for a submission link, but I can't find it. I have to check every link, and click into each link and check. I just feel very troublesome. *(hind-assignmt-FG2-E15)*	8 (7.3%)
7. Assessment tasks available too early	[When the submission link for an assignment available too early,] it is equal to saying that I don't know very well. This period is too long, so I don't want to do it very early, and I don't want to do it in the middle of the period too. It would be better to give me a short notice of the assignment, and I will do it with more focus. (*hind-assigt-FG2-C16*)	7 (6.4%)

Negative comment theme	Example quote (translated from Chinese)	Frequency of comments (%)
8. Not possible for pre-study	She [the teacher] didn't upload the PPT in advance, and the vocabulary items first appear, all of which I don't know. She didn't give me the opportunity to preview it in advance, and yet, she asked questions very quickly. Three or four people had answered her questions. Then she turned around and saw [me], and directly ask me a question. I was then confused and didn't know what to answer. I immediately looked up [for the word]. *(hind-word-FG1-C16)*	6 (5.5%)
9. Not helpful for acquiring practical skills or knowledge	But I think that daily feedback isn't really practical. *(hind-feedbk-FG2-E15)*	5 (4.6%)
10. Online activities not fitting students' preferences	……because we will not take the initiative to ask questions [via this activity]. If [we ask the questions] online, it would be better to ask questions directly in person, I think. *(hind-feedbk-FG1-D33)*	4 (3.7%)
11. Online resource format not compatible with translation tools	[Reading materials are all scanned copies.] I think it's not convenient to use. When I read them, I get used to read from a computer or a tablet. If it is of PDF format and I encounter some words I do not understand, I can right click to let the dictionary search the meaning. But the reading material is only a scanned copy in pdf format, and I cannot operate in the same way. *(hind-word-FG1-B04)*	3 (2.8%)
12. Possible to forget about the online task after class	Although I vaguely remember that in the previous lesson [the teacher] seemed to mention about the online quiz, I may forget about it later. If she could send an email to remind us, I think I might have got a higher score. *(hind-quiz-FG2-C33)*	1 (0.9%)

Total 109 (100%)

As can be seen from Table 5, the first three categories of positive comments, comprising 45.7% of the total positive comments, were "online elements assisting comprehension of in-class lectures or vice versa," "providing in-class feedback or connections between online activities," and "establishing pre-study or revision routines." These three categories were all related to the connections between online and face-to-face elements or between two online elements. This indicated that the students, to a moderate extent, found the practices that strengthened the connections between different elements in the blended learning course effective in facilitating their learning. In addition, four out of the 12 positive comment categories were associated with the comprehension of the course materials or lectures, which contributed to 55.4% of the total comments. The four categories were "online elements assisting comprehension of in-class lectures or vice versa," "establishing pre-study or revision routines," "online resource format compatible with online translation tools," and "online resources with a suitable difficulty level in terms of language and content." This showed that the students were quite aware of the blended learning practices that could be employed to cope with problems regarding understanding technical vocabulary and comprehending

lectures—the two major problems identified by Evans and Morrison (2011) for undergraduate students studying at English-medium universities.

As shown in Table 6, the top two categories of negative comments, contributing to 43.1% of the total negative comments, were "online resources too difficult in terms of language or content" and "insufficient guidance or knowledge to accomplish the online task." This suggested that the effectiveness of blended learning course materials could be limited, to a certain extent, by inappropriate instructional design of the online resources or insufficient support provided to learners. Similar to the positive comments that the students provided, three out of the 12 negative comment categories (contributing to 40.4% of total comments) were related to the comprehension of course materials or lectures. The categories were "online resources too difficult in terms of language or content," "not possible for pre-study," and "online resource format not compatible with translation tools."

In summary, 12 practices mediated through the Moodle course materials were identified from the focus groups that supported their learning, and another 12 practices hindered their learning. Among them included whether the practices strengthened the connections between different

elements in online and face-to-face components, assisted in the comprehension of instructional materials, or provided support for online tasks or online operation.

Discussion

Use of Various Types of Moodle Course Materials

One primary aim of the present study was to find out the Moodle course materials that may positively be associated with students' learning achievements and identify the specific instructional features and practices that may contribute to the learning effectiveness. The findings revealed that students' access frequencies for Moodle Word/PDF/PPT resources, video resources, assignment activities, feedback activities and quiz activities were significantly, positively associated with their course total scores. It should be noted that the positive associations between two sets of variables could not indicate any causation, and the associations may be influenced by confounding variables, such as students' motivation level to study the course, their English proficiency and their academic ability. Moreover, the access frequencies collected from the log data might not reflect the depth of engagement with the course content. Nevertheless, the investigation of factors influencing the

learning outcomes in this course is out of the scope of the present study and will not be further explored.

The five types of Moodle course materials (Word/PDF/PPT resources, video resources, assignment activities, feedback activities and quiz activities) were also commonly employed by the participating instructors, either adopted by all five instructors or by three of them. These sets of materials enhanced student learning largely by introducing automation and facilitating the consumption of knowledge, which were what Magana (2017) refers to as translational use of technology. The qualitative comments revealed that in general students would pre-study the lecture notes or lecture videos before class or review the materials after class in order to prepare themselves to comprehend the face-to-face lectures more fully. One focus-group participant commented that she concentrated better on the videos than the face-to-face lectures because the videos were appealing to view and they could be played repeatedly. She also pointed out that if she was distracted for a moment in a lecture, then she might not catch up with what the teacher said in class; but with a video, she could replay any portion during which she was distracted or found it difficult (*enhan-video-FG1-E03*).

The qualitative comments also indicat-

ed that students often reviewed the online assignment guidelines in a careful way in order to ensure that they were on the right track when preparing for the assignment. For example, a focus-group participant noted that he and his group members treated the group project guidelines more rigorously than the vocabulary they encountered in the lecture notes. When they tried to figure out the more precise meaning of some expressions in the guidelines, they found that different group members might have different interpretations and they ended up seeking the instructor's clarification (*hind-assigt-FG1-A37*). Thus, it is not surprising that the students who viewed these course materials more frequently (as a compensation strategy to the materials of which they could only understand 50%–90% at an initial stage) could fulfil the course expectations better and receive higher scores in assessments.

In addition, Moodle assignment activities, feedback activities and quiz activities were related to the assessment and self-reflection on students' mastery of course content. A participant had pointed out that there was no final exam for the course and no need to review the previous topics, so he had not bothered to go through the correct answers of his quizzes (*hind-quiz-FG2-C33*). Yet, it could be possible that the more motivated students would review more regularly the comments and answers for their assignments and quizzes, and submit more consistently their in-class work for the feedback activities.

On the other hand, the Moodle activities for creating and sharing ideas, knowledge and data (i.e., forum, glossary, wiki and database) were only adopted by one or two participating instructors, and students' engagement in these activities were not associated with their academic achievements. Similar to many Moodle-based content courses investigated by other studies (Badia et al., 2019; Cabero-Almenara et al., 2019; Carvalho et al., 2011), the social, communicative and collaborative features of the LMS had not been fully utilized by the participating instructors and students. Indeed, this set of Moodle activities were mostly related to knowledge development and production, which is referred by Magana(2017) as transformational use of technology. It appeared that, like what was observed by McFarlane (2019) in the UK school settings, the participating instructors in this study were mostly at the translational, rather than transformational, level of using online digital tools, which might only have limited impact on student learning (Magana, 2017).

Students' engagement with the links to external websites, which were adopted in two participating classes, were also not associated with their learning achievements.

As suggested by previous studies, the use of links to external webpages may not enhance incidental knowledge acquisition (De Ridder, 2002; Hirschel, 2012). Finally, the use of scheduler activities in one participating class was for administrative purposes of making appointments with the instructor, and thus its use was also not associated with students' learning achievements.

Blended Learning Practices that Support Students' Effective Utilization of Course Materials

The second research question addressed the instructional features and practices of the types of Moodle course materials of which students' access frequencies were significantly associated with their academic achievements. Twelve themes were identified from the positive comments and 12 other themes from the negative comments. These positive and negative comment themes could be paired up and then mapped to three of the key themes for successful implementation of a blended learning course that have been consolidated in Table 1. Table 7 presents the 12 pairs of positive and negative comment themes and their corresponding key themes for successful implementation of a blended learning course, and is sorted by the key themes.

Table 7

Pairing Up of Positive and Negative Comment Themes Related to the Effective Utilization of Moodle Word/PDF/PPT Resources, Video Resources, Assignment Activities, Feedback Activities and Quiz Activities (Sorted by Key Themes for Successful Implementation of a Blended Learning Course)

Pair no. Positive comment themes (freq.)	Negative comment themes (freq.)	Key themes for successful implementation of a blended learning course	Total freq. (percent)
1. Online resources with a suitable difficulty level in terms of language and content (9)	Online resources too difficult in terms of language or content (35)	Appropriate resources and tools	44 (20.8%)
2. Well-organized course pages (6)	Disorganized course pages (8)	Appropriate resources and tools	14 (6.6%)
3. Online resource format compatible with online translation tools (10)	Online resource format not compatible with translation tools (3)	Appropriate resources and tools	13 (6.1%)

Pair no. Positive comment themes (freq.)	Negative comment themes (freq.)	Key themes for successful implementation of a blended learning course	Total freq. (percent)
4. Online activities fostering positive collaboration in class (7)	Online activities not fitting students' preferences (4)	Appropriate resources and tools	11 (5.2%)
5. Online elements assisting comprehension of in-class lectures or vice versa (19)	Misalignment between online resources and assessments (8)	Integrative multimodal tasks	27 (12.7%)
6. Providing in-class feedback or connections between online activities (14)	Lack of teacher feedback or incentive for online participation (10)	Integrative multimodal tasks	24 (11.3%)
7. Establishing pre-study or revision routines (14)	Not possible for pre-study (6)	Integrative multimodal tasks	20 (9.4%)
8. Achievable online tasks (7)	Insufficient guidance or knowledge to accomplish the online task (12)	Sustainability beliefs and practices	19 (9.0%)
9. Able to acquire practical skills or knowledge (11)	Not helpful for acquiring practical skills or knowledge (5)	Sustainability beliefs and practices	16 (7.5%)
10. Alternative channels for submission of assessments (3)	Unable to submit or complete assessments (10)	Sustainability beliefs and practices	13 (6.1%)
11. Assessment tasks available early online (1)	Assessment tasks available too early (7)	Sustainability beliefs and practices	8 (3.8%)
12. Sparing time for online activities to be completed in class (2)	Possible to forget about the online task after class (1)	Sustainability beliefs and practices	3 (1.4%)
		Total	212 (100%)

Although in Table 7 none of the comment themes was mapped onto "purposeful course development" (one of the key themes listed in Table 1), the comment themes of the other three categories suggest the importance of careful course planning for successful implementation of a blended learning course. For example, mapping onto the key theme "appropriate resources and tools," the comments themes about the format of online resources and the types of online tasks demand from the course instructor more thoughtful selection and arrangement of online resources and tasks.

With regard to the key theme "appropriate resources and tools," the focus group comments highlighted the issue of accessibility of course materials by EFL learners, which includes providing online resources appropriate for students' English proficiency levels (pair 1) and compatible with online translation tools or dictionaries (pair 3), and organizing Moodle course page in a way that is easy for students to navigate (pair 2). In comparison, the corresponding pedagogical considerations given by Sharma (2017) and Hinkelman (2018) also address the issue of learner proficiency when selecting appropriate resources and tools, but they pinpoint the development of learners' language proficiency.

For the key theme "integrative multimodal tasks," the student comments suggested how they used online resources and activities to prepare for the face-to-face sessions, which included viewing videos or completing online tasks associated with reading materials (pair 5), and pre-studying or reviewing the lecture notes (pair 7) before or after each face-to-face session. The online videos and reading materials could be a repetition or an extension of the content delivered in the face-to-face sessions. In comparison, the pedagogical considerations given by Whittaker (2014) and Sharma (2017) on how the online and face-to-face elements will support each other focus on each mode accomplishing a different task to "add value" to blended language learning (Whittaker, 2014, p. 21).

To sum up, the student perspectives obtained for the key themes "appropriate resources and tools" and "integrative multimodal tasks" highlight the significance of adopting a comprehensible-input based approach (Rodrigo, et al., 2004) to delivering Moodle course materials to EFL learners, which includes meticulously organising comprehensible amounts of online resources and timely posting the online resources for students to read/watch before attending in-class lectures and discussions. Therefore, setting up a course in the LMS for EFL learners is more than just creating a repository for materials and information (Cabero-Almenara et al., 2019), even if the

course page consists of only static resources. The course instructor may need to have the wisdom and skills of using digital technology to make English-medium content materials more accessible to their learners.

Lastly, for the key theme "sustainability beliefs and practices," student comments indicated a certain degree of frustrations when they received insufficient guidance or encountered software problems in completing online tasks (pair 8 & pair 10). Other studies found that frustrations related to the online learning environment might demotivate students to access online course contents and thus hinder student learning (Kelly et al., 2021; Ramirez-Arellano et al., 2018). Thus, the corresponding pedagogical considerations given by Whittaker (2014), Sharma (2017) and Hinkelman (2018) address the importance of institutional support and teacher training for sustainable practices.

Guiding Principles for EMI Courses Generated from Students' Perspectives

Findings from the present study also accord with recent studies (e.g., Hernandez-Nanclares & Jimenez-Munoz, 2016; Yeh, 2014) indicating that the teaching practices adopted by EMI course instructors may make a significant contribution to students' confidence in EMI learning and uptake. A recurrent topic emerging in the focus group discussions is the issue of confidence/anxiety over learning in English and completing their assignments via the LMS. When focus-group participants found the learning activities or tasks accomplishable or supported with other activities, they generally expressed their confidence or satisfaction with EMI learning. For example, a participant reflected that she had "strong self-confidence" in completing an online quiz because she believed that the quizzes set by the instructor were not difficult (*enhan-quiz-FG2-C16*). Another participant described her LMC class "very outstanding" because this was the only course she had taken so far that the instructor would ask students to complete an online feedback activity at the end of each class, and the instructor would summarize the key questions that students raised and have the students discuss the questions at the beginning of the next lesson (*enhan-feedbk-FG1-C33*). On the other hand, focus-group participants would express anxiety and poor confidence when they encountered learning activities without proper support or beyond their language ability and problems in online submission. For example, a participant noted that the area where she often "didn't have the guts or confidence" was to write the online daily feedback for each lecture because she did not know how to reflect on her own learning experience (*hind-feedbk-*

FG2-E03). Another participant reported that she often "worried" that she might miss the deadline of submitting a certain assignment because she was not clear about the assignments her instructor wanted them to hand in and there were some repetitive assignment links on the Moodle course page that her instructor created when some links were found not working well (*hind-feedbk-FG1-D37*).

Therefore, in the EMI course we investigated, students might struggle to fulfil the assignment requirements set by their instructors and figure out the set-up on their Moodle course page, in addition to the anxiety they might had when comprehending the lectures and course materials (as their estimated comprehension rate for face-to-face lectures being 70%–90% and that for course materials being 50%–90% only without using any comprehension aids). In response, we suggest that EMI course instructors consider offering learning scaffolding through various means and providing supports when students are interacting with the learning management system, in particular when they are dealing with assessments. We combine the student perspectives solidified in Table 7 with a few previously documented success strategies into a limited set of guiding principles for blended learning in Table 8 under three headings: (1) appropriate resources and tools, (2) integrative multimodal tasks, and (3) sustainability beliefs and practices. We believe that adoption of these blended learning principles can be a blueprint for designing EMI courses for enhancing success of our EFL learners.

Table 8

Guiding Principles for Blended Learning Generated from Students' Perspectives in the Present Study

Key themes	Guiding principles

Appropriate resources and tools	• Layout of course page
	  ○ Avoid creating a long list of files or activities within one topic/weekly section; instead, using separate pages or topic sections to lead students to different types of files or activities *(Pair 2)*
	• Format of online resources
	  ○ Divide them into manageable chunks *(Pair 1)*
	  ○ Include an advance organizer to indicate the relations of the topics in the resource *(Pair 1)*
	  ○ For static resources, formats which are compatible with online dictionary or translation tools (i.e. non-scanned format) are preferred *(Pair 3)*

Key themes	Guiding principles

Appropriate resources and tools	• Type of online tasks
	    ○ Students' learning style and readiness may need to be considered when deciding whether or not to adopt an online task and when selecting an online task type (Birbal et al., 2018) *(Pair 4)*
	    ○ Online activities which can foster collaborative work (e.g., group discussion) are preferred *(Pair 4)*

Integrative multimodal tasks	• Use a modular approach to course design
	    ○ Each module has clearly stated modular intended learning outcomes
	    ○ The online resources, in-class activities, and the online activities within each module have to be aligned with the modular intended learning outcomes *(Pair 5)*
	• Upload relevant online resources before the face-to-face lecture delivery so that students can preview the materials and comprehend/participate in the face-to-face lectures better *(Pair 7)*
	• Provide in-class feedback or discussions to online activities to motivate students to participate online *(Pair 6)*
	• Set up connections between online activities in the LMS to require students to progress through the activities one at a time in sequential order *(Pair 6)*

Sustainability beliefs and practices	• At the beginning of a semester, familiarize students with
	    ○ the concept and details of blended learning (Birbal et al., 2018; Wichadee, 2018)
	    ○ the need for learning pace control and time management for the online components *(Pair 11)*
	    ○ the advantages of employing certain online tools in the course (Birbal et al., 2018) *(Pair 9)*
	• Provide initial guidance on completing an online task, e.g.,
	    ○ Sparing several minutes at the end of a face-to-face class meeting for students to work on the online task *(Pair 12)*
	    ○ Monitoring student practice and intervening at where most students have problems when they conduct the online activity in class *(Pair 8)*
	    ○ Sending out emails to remind students about the due date of an online activity *(Pair 12)*
	• Set up a channel for students to report any technical problems they encounter, in particular for assignment or quiz submission, and obtain practical solutions (Wichadee, 2018) *(Pair 10)*

Conclusion

The present study investigated the utilization of various types of Moodle course materials by 190 Chinese students from five different classes of an English-medium course, their views regarding the utilization, and their learning achievements in terms of course total scores. It was found that students' interaction with certain Moodle materials (including Word/PDF/PPT resources, video resources, assignment activities, feedback activities and quiz activities) were significantly and positively associated with their academic performance. Based on students' practices and responses to the aforementioned Moodle materials, features of learning activities that enhanced or hindered the effective utilization of these online materials were identified and mapped on to the headings "appropriate resources and tools," "integrative multimodal tasks," and "sustainability beliefs and practices" for establishing guiding principles for designing blended-learning content courses for second/foreign language learners. Compared to the literature for blended language learning, student perspectives obtained from the present study suggested a comprehensible-input based approach to delivering Moodle EMI course materials to EFL learners. Thus, EMI course instructors are suggested offering

learning scaffolding through various means and providing supports when students are interacting with the learning management system, in particular when they are dealing with assessments.

It should be noted that the set of Moodle materials or activities analysed in the present study mainly aimed at introducing automation and facilitating the consumption of knowledge. Moodle activities related to students producing, evaluating and disseminating knowledge were generally not included in the analysis. As blended learning seems to be emerging as a preferred mode of instruction over fully online and fully face-to-face modes by faculty and students in higher education (Antwi-Boampong, 2019; Dziuban et al., 2018), more well-designed and developed Moodle activities aiming at the latter type of knowledge learning are expected to appear when faculty and students are getting used to the operation of blended learning mode. In addition, only a level-one interdisciplinary course without the final exam was investigated in the present study. Students might have employed a different set of learning strategies if the course had been a major course at a higher level. Moreover, the face-to-face mode was the lead mode in the blend for all participating classes. Students might have had different online practices if the lead mode

of a course had been the online mode. In the future, longitudinal or cross-sectional studies could be conducted to track how learner practices related to knowledge and language acquisition may vary with various degrees of adopting LMS activities that aim for knowledge production and dissemination. Such data may be useful for investigating how an "ecosystem of knowledges and languages" (Helm, 2020, p. 321) is established via LMS for EMI courses. Furthermore, this preliminary study could be extended to different course types and different delivery modes. More student practices and comments could be elicited and included in inventories for exploring a principled approach to blended learning more widely.

Note

1. Altogether 20 outliners were removed: One was the access frequency for Moodle link resources from the data of Class E; five were the access frequencies for Word/PDF/PPT resources from the data of three classes; four were the access frequencies for assignment activities from the data of three classes, three were the access frequencies for feedback activities from the data of three classes; one was the access frequency for quiz activities from the data of Class D; five were the access frequencies for forum activities from the data of two classes; and one was the access frequency for wiki activities from the data of Class D.

Acknowledgements

References

Aguilar, M. (2017). Engineering lecturers' views on CLIL and EMI. *International Journal of Bilingual Education and Bilingualism, 20*(6), 722–735. https://doi.org/10.1080/13670050.2015.1073664

Anderson, H. M. (2018). *Blended basic language courses: Design, pedagogy, and implementation*. Routledge.

Andrei, E. (2017). Technology in teaching English language learners: The case of three middle school teachers. *TESOL Journal, 8*(2), 409–431. https://doi.org/10.1002/tesj.280

Antwi-Boampong, A. (2019). Towards a faculty blended learning adoption model for higher education. *Education and Information Technologies, 25*, 1639–1662. https://doi.org/10.1007/s10639-019-10019-z

Badia, A., Martin, D., & Gomez, M. (2019). Teachers' perceptions of the use of Moodle activities and their learning impact in secondary education. *Technology, Knowledge and Learning, 24*(3), 483–499. https://doi.org/10.1007/s10758-018-9354-3

Birbal, R., Ramdass, M., & Harripaul, C. (2018). Student teachers' attitudes towards blended learning. *Journal of Education and Human Development, 7*(2), 9–26. https://doi.org/10.15640/jehd.v7n2a2

Cabero-Almenara, J., Arancibia, M. L., & Del Prete, A. (2019). Technical and didactic knowledge of the Moodle LMS in higher education: Beyond functional use. *Journal of New Approaches in Educational Research, 8*(1), 25–33. https://doi.org/10.7821/near.2019.1.327

Carvalho, A., Areal, N., & Silva, J. (2011). Students' perceptions of Blackboard and Moodle in a Portuguese university. *British Journal of Educational Technology, 42*(5), 824–841. https://doi.org/10.1111/j.1467-8535.2010.01097.x

De Ridder, I. (2002). Visible or invisible links: Does the highlighting of hyperlinks affect incidental vocabulary learning, text comprehension, and the reading process? *Language Learning & Technology, 6*(1), 123–146. http://dx.doi.org/10125/25146

Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2018). Blended learning: The new normal and emerging technologies. *International Journal of Education Technology in Higher Education, 15*(3). https://doi.org/10.1186/s41239-017-0087-5

Evans, S., & Morrison, B. (2011). Meeting the challenges of English-medium higher education: The first-year experience in Hong Kong. *English for Specific Purposes, 30*(3), 198–208. https://doi.org/10.1016/j.esp.2011.01.001

Gruba, P., & Hinkelman, D. (2012). *Blending technologies in second language classrooms.* Palgrave Macmillan.

Helm, F. (2020). EMI, internationalisation, and the digital. *International Journal of Bilingual Education and Bilingualism, 23*(3), 314–325. https://doi.org/10.1080/13670050.2019.1643823

Hernandez-Nanclares, N., & Jimenez-Munoz, A. (2016). ICT in EMI programmes at tertiary level in Spain: a holistic model. In A. Pareja-Lora, C. Calle-Martínez, & P. Rodríguez-Arancón (Eds), *New perspectives on teaching and working with languages in the digital era* (pp. 259-268). Research-publishing.net. https://doi.org/10.14705/rpnet.2016.tislid2014.439

Hirschel, R. (2012). Moodle: Students' perspectives on forums, glossaries and quizzes. *The JALT CALL Journal, 8*(2), 95–112. https://journal.jaltcall.org/articles/136

Hinkelman, D. (2018). *Blending technologies in second language classrooms* (2nd ed.). Palgrave Macmillan.

Kelly, R. F., Mihm-Carmichael, M., & Hammond, J. A. (2021). Students' engagement in and perceptions of blended learning in a clinical module in a veterinary degree program. *Journal of Veterinary Medical Education, 48*(2), 181–195. https://doi.org/10.3138/jvme.2019-0018

Kervin, L. & Derewianka, B. (2011). New technologies to support language learning. In B. Tomlinson (Ed.), *Materials development in language teaching* (pp. 328–351). Cambridge University Press.

Lázár, I. (2016). Developing activities and materials to support effective interaction online. In M. McCarthy (Ed.), *The Cambridge guide to blended learning for lan-*

guage teaching (pp. 139–159). Cambridge University Press.

Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A systematic review of English medium instruction in higher education. *Language Teaching*, *51*(1), 36–76. https://doi.org/10.1017/S0261444817000350

Magana, S. (2017). *Disruptive classroom technologies: A framework for innovation in education.* Corwin.

McFarlane, A. E. (2019). Devices and desires: Competing visions of a good education in the digital age. *British Journal of Educational Technology, 50*(3), 1125–1136. https://doi.org/10.1111/bjet.12764

Nimehchisalem, V., & Mukundan, J. (2014). Approaches to the evaluation of computer assisted language learning software. In R. Al-Mahrooqi, & S. Troudi (Eds.), *Using technology in foreign language teaching* (pp. 285–305). Cambridge Scholars Publishing.

Pecorari, D., & Malmstrom, H. (2018). At the crossroads of TESOL and English medium instruction. *TESOL Quarterly, 52*(3), 497–515. https://doi.org/10.1002/tesq.470

Ramirez-Arellano, A., Acosta-Gonzaga, E., Bory-Reyes J, & Hernández-Simón, L.M. (2018). Factors affecting student learning performance: A causal model in higher blended education. *Journal of Computer Assisted Learning, 34*(6), 807–15. http://doi.wiley.com/10.1111/jcal.12289

Rodrigo, V., Krashen, S., & Gribbons, B. (2004). The effectiveness of two comprehensible-input approaches to foreign language instruction at the intermediate level. *System, 32*, 53–60. https://doi.org/10.1016/j.system.2003.08.003

Rossett, A., Douglis, F., & Frazee, R.V. (2003). *Strategies for Building Blended Learning.* Retrieved August 21, 2019 from, http://ablendedmaricopa.pbworks.com/f/Strategies+Building+Blend-ed+Learning.pdf.

Sharma, P. (2010). Blended learning. *ELT Journal, 64* (4), 456–458. https://doi.org/10.1093/elt/ccq043

Sharma, P. (2017). Blended learning design and practice. In M. Carrier, R. M. Dame-

row, & K. M. Bailey (Eds.), *Digital language learning and teaching: Research, theory, and practice* (pp. 167–178). Routledge.

Sharma, P., & Barrett, B. (2007). Blended learning: *Using technology in and beyond the language classroom.* Macmillan.

Sharma, P., & Westbrook, K. (2016). Online and blended language learning. In F. Farr, & L. Murray (Eds.), *The Routledge handbook of language learning and technology* (pp. 320–333). Routledge.

Stickler, U., & Hampel, R. (2010). CyberDeutsch: Language production and user preferences in a Moodle virtual learning environment. *CALICO Journal, 28*(1), 49–73. https://doi.org/10.11139/cj.28.1.49-73

Thornbury, S. (2016). Educational technology: Assessing its fitness for purpose. In M. McCarthy (Ed.), *The Cambridge guide to blended learning for language teaching* (pp. 25–35). Cambridge University Press.

Tomlinson, B., & Whittaker, C. (Eds.). (2013). *Blended learning in English language teaching: Course design and implementation.* British Council.

Whittaker, C. (2013). Introduction. In B. Tomlinson, & C. Whittaker (Eds.), *Blended learning in English language teaching: Course design and implementation* (pp. 9–24). British Council.

Whittaker, C. (2014). Blended learning in EFL: Adopting a principled approach to integrating technology. In R. Al-Mahrooqi, & S. Troudi (Eds.), *Using technology in foreign language teaching* (pp. 8–29). Cambridge Scholars Publishing.

Wichadee, S. (2018). Significant predictors for effectiveness of blended learning in a language course. *The JALT CALL Journal, 14*(1), 25–42. https://doi.org/10.29140/jaltcall.v14n1.222

Wu, D. D. (2015). Online learning in postsecondary education: A review of empirical literature (2013-2014). *Ithaka S+R.* https://doi.org/10.18665/sr.221027

Yeh, C.-C. (2014). Taiwanese students' experiences and attitudes towards English-Medium courses in tertiary education. *RELC Journal, 45*(3), 305–319. https://doi.org/10.1177/0033688214555358

Appendix

Focus Group Questions Related to the Present Study

A. First focus-group questions

1. What face-to-face or online learning activities in *Language, Media and Culture* (LMC) have you engaged in so far?
2. What difficulties have you faced so far when logging onto and navigating the iSpace (Moodle) course page of LMC?
3. How well do you understand the English used in the iSpace course material of LMC?
4. What measures does the teacher provide to help you to overcome the language problem in LMC?
5. Do you think these measures are useful? Why or why not?

B. Second focus-group questions

1. Could you describe the iSpace features/course materials that you have in your LMC course page?
2. Could tell me the online assignments and activities you did in LMC?
3. What skills have you learned because of these online assignments and activities?
4. How important/useful do you think the skills you have learned from the online assignments and activities in LMC?
5. What challenges do you experience when performing the online assignments and activities in LMC?
6. How do you think that the online LMC activities can help you understand the face-to-face activities in the classroom, and vice versa?
7. How well do you understand the English used in the iSpace course material of LMC now?
   • *Follow-up:* Has this improved/changed since the beginning of the course?
8. What other difficulties do you face when English is used as the medium of instruction in LMC (for both online and face-to-face instruction)?
   • *Follow-up:* Has this improved/changed since the beginning of the course?