



Research Article

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Using Blended Learning in Teacher Training Programs: Perspectives of Pre-service Teachers

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Abstract

Blended learning (the combination of face-to-face and online learning) has become increasingly favored in teacher education. This learning approach has been identified as an effective method of providing opportunities for pre-service teachers to work in both online and face-to-face environments. This paper employed a quantitative research design to explore the pre-service teachers' perspectives regarding the use of blended learning in their training programs. This study surveyed 624 pre-service teachers in different fields at multiple universities with teacher training programs in Vietnam. The results revealed that pre-service teachers favored the blended learning method. In addition, teachers engaging in the blended learning approach used teaching methods and technologies appropriately. The study also investigated the relationship between online and face-to-face learning implemented in the blended learning approach. Compared to face-to-face or online learning alone, blended learning was observed to be more effective. In conclusion, Vietnamese pre-service teachers reacted positively and preferred the use of blended learning in their training programs.

Keywords: *Blended learning, Teacher training program, Pre-service teachers, Higher education, Vietnam*

1. Introduction

Blended learning (also referred to as flexible or hybrid learning) is most commonly utilized in higher education or adult education. Blended learning seems to motivate students and makes the purpose of learning more definitive and clear (Latchem & Jung, 2010). When e-learning is combined with conventional learning in the classroom, students can “take advantage of much of the flexibility and convenience of an online course while retaining the benefits of the face-to-face classroom experience” (Dziuban, Hartman, Cavanagh, & Moskal, 2011, p. 17). It is believed that the ‘new traditional’ model in higher education around the world will be blended learning or technology-enabled learning spaces

(Graham, Woodfield, & Harrison, 2013). According to Kang (2014), the blended learning approach is favored in higher education because it can effectively reduce costs, distribute quality education, and solve distance problems. With the advantages associated with e-learning, the blended learning approach is considered to be important because it can reduce the limitations typically associated with online learning, such as the lack of communication that often results in feelings of separation, isolation, and alienation among students, as well as diminished feedback and lack of responsibility.

Blended learning has been in use in classrooms in various ways for some time. This learning approach has been identified as an effective method to ensure superior integration of information communication technology (ICT) across the curriculum in teacher preparation programs. It can assist pre-service and in-service teachers in learning how to integrate technology within the digital environment in a non-threatening and comfortable setting (Duhaney, 2012). As of now, considerable research has been conducted to document the benefits of blended learning in higher education, but there are comparatively few empirical studies of the blended learning approach in teacher education fields (Collopy & Arnold, 2009). As Kang (2014) indicated, the subject matter being taught and the teacher candidates can affect the effectiveness of the blended approach. In future studies, researchers need to consider the features of teacher education programs, such as field experience of the teacher candidates, communication with in-service teachers, and interaction with K-12 students. This paper investigates the perspectives of pre-service teachers in Vietnam, a developing country in Southeast Asia, toward the use of blended learning in their training courses.

2. Literature Review

2.1 Conceptualizations of blended learning

Blended learning is simply a method of learning that combines online and face-to-face components. It is also known as “hybrid learning” or the “flipped classroom” in the literature (Bowyer, 2017). Effective integration of virtual and face-to-face methods is vital for successful blended learning (Garrison & Kanuka, 2004). Blended learning requires the deliberate preparation of media, methods, and manners of organizing learning situations by bringing together traditional media and methods with e-learning components and possibilities (Kupetz & Ziegenmeyer, 2005).

Additionally, Owston, Wideman, and Murphy (2008) described blended learning as an approach for learners who are not in the same location, as it combines face-to-face experience in which some learners are co-located with online experience. Currently, many higher education courses, as well as courses at other levels of the education system, already utilize a version of a blended learning approach. Students have access to many facilities and can participate in threaded discussions, access electronic reading materials, and submit assignments via a course management tool or other internet resources (e.g., Blackboard, blogs, wikis, Moodle, etc.). A combination of learning modalities related to face-to-face interaction and online learning is what constitutes blended learning (Crawford & Jenkins, 2017). According to So and Brush (2008), blended learning is “any combination of learning delivery methods, including most often face-to-face instruction, with asynchronous and/or synchronous computer technologies” (p. 321).

Furthermore, Ross and Gage (2006) categorized blended learning into the following three forms: (a) web-supplemented or technology-enhanced, in which the online components merely supplement the course; (b) hybrid or reduced face time, which substitutes online learning activities for a portion of the face-to-face component; and, (c) blended programs that offer students the opportunity to choose from traditional face-to-face classes, blended classes, or classes offered online. So and Brush (2008) argued that students’ self-motivation and self-management increases as there is a greater emphasis on self-regulated learning and less in-class time in a blended learning environment.

2.2 Benefits of blended learning

The successful merging of face-to-face and online aspects in blended learning has brought about several benefits by advocating student-centeredness, providing diverse study content, elevating participation, cultivating student-student/teacher-student interaction, enabling timely feedback, making resources more accessible, and providing a platform for synchronous and asynchronous discussions (Atmacasoy & Aksu, 2018; Biçen, Özdamlı, & Uzunboylu, 2014; Yapici, 2016).

An enhancement in student retention and improvements in students' attainment has specifically been noticed after the introduction of blended learning in higher education courses (López-pérez, Pérez-López, & Rodríguez-Ariza, 2011). Courses with the blended learning approach report better attendance of face-to-face classes, elevation in self-reported measures of student satisfaction, and improved performance in examinations (Stockwell, Stockwell, Cennamo, & Jiang, 2015). In Kenney and Newcombe's (2011) comparison to establish effectiveness in the view of grades, blended learning scored higher on average than the non-blended learning environment. Heightened retention, improvement in course completion rates, and a boost in student satisfaction were all part of the transformative potential of blended learning as examined by Garrison and Kanuka (2004). No significant dissimilarities were found in comparisons between blended learning environments that were conducted to demonstrate disparities between academic performance, grade distribution, and performance differences according to gender (Kazu & Demirkol, 2014).

Blended learning has been partially responsible for more strategic use of classroom time as a result of improved course outcomes following its implementation. The traditional lecture-based teaching model is challenged by the more effective use of classroom time with more active and meaningful activities, thus rendering the blended learning technique superior (Garrison & Kanuka, 2004). This has been validated by Delialioğlu (2012), who showed that problem-based, instead of lecture-based, blended learning increased student engagement. Online activities reinforce the learning undertaken in the classroom or provide a basic introduction to topics prior to in-depth discussion in class.

Aspden and Helm (2004) discovered that students who resided far away from campus were able to utilize their time at university better through blended learning, as they had the ability to study materials at home prior to the class. Furthermore, participating and engaging with online materials allowed students to tackle topics that they were struggling with better and, thus, grow their confidence. The flipped classroom, in which students study textbook material and attend online lectures at home prior to engaging in group discussions and problem-solving in class, is an alternate form of blended learning (Bowyer, 2017). Some subjects may benefit more than others. Stockwell et al. (2015) found that this method of blended learning was especially successful in teaching science, as it afforded teachers an opportunity to deviate from the traditional textbook model and granted students an opportunity to evaluate scientific concepts in a more complex manner.

The opportunity for peer and tutor interaction through online discussion presents a further potential benefit of blended learning. Online forums in blended learning can be either synchronous (such as instant messaging) or asynchronous (such as discussion boards). Assessments of students' satisfaction and perceived utility of online discussion show that these potential advantages are perhaps the most important determinants of conflict in the literature (Bowyer, 2017). Even when they are off campus, online communication permits students to form and cultivate associations with other students, as well as their learning institutions, through a blended learning environment (Aspden & Helm, 2004). In blended learning, online communication is not confined to peer discussion; it should also include teachers and tutors. The opportunity for teacher-student interactions beyond the classroom and improved feedback are a few of the many benefits that blended learning offers. Additionally, the literature suggests that being able to communicate with tutors online is fruitful (Hughes, 2007).

2.3 Incorporation of blended learning in teacher training programs

The foundation of the traditional classroom, one that is heavily text-based and largely dependent on lectures, no longer provides a comfortable setting for teachers and students. Teacher candidates and students prefer an interactive or collaborative learning setting with ample exposure to a variety of technologies. Greater collaboration between instructors and students and among teacher candidates/students and their peers, in addition to a student-centered environment, can all be achieved through the blended learning approach when it is planned and implemented properly. Connectivity, communication, and the opportunity to engage with the instructional materials are all ensured by this approach, and students perform best when allowed substantial communication with peers and instructors (Duhaney, 2012). Its resilience makes the blended technique a favorite among student teachers. It is believed that the opportunity to manage the pace of the course and the ability to choose where they wish to engage in learning is provided by this approach. In terms of the use of the blended approach, faculty have communicated their approval of (a) the enhanced intercommunication with students that this format affords, (b) the students' increased engagement, and (c) the resilience this environment allows along with the opportunities for continuous advancement (Vaughan, 2007). Through the nurturing of this type of environment during teacher preparation, teacher candidates become increasingly likely to utilize an array of technologies and study how to foster a learning environment in which students are engaged in learning with the aid of the familiar technology tools (Duhaney, 2012).

As observed in an instructional technology and material development course, both online and blended learning approaches lead to the development of a positive attitude toward e-learning among teacher candidates. Additionally, the blended learning group demonstrated significant positive attitudes when compared to the online learners (Biçen et al., 2014). Similarly, Duhaney (2012) identified that due to the utilization of familiar technology for teaching and learning, teacher candidates also learn how to integrate technology with traditional teaching methods. In addition to reducing the number of individuals and the hours spent attending the physical classroom, the blended learning approach can be appropriated and utilized to enable teacher candidates to accomplish required field experience or observation. Any readily available online videoconferencing tool can be utilized to gain some of the field experience or observation hours. Additionally, with a range of information communication technologies, teacher preparation programs aid teacher candidates in maximizing on their students' interests and familiarity to encourage and facilitate a virtually and physically interactive learning environment by embracing the use of blended learning (Duhaney, 2012).

According to Atmacasoy and Aksu (2018), the online component of blended learning allows for timely feedback, which is vital for engagement. Pre-service teachers in these particular studies favored blended learning over exclusively online distance learning or traditional instruction since prompt feedback encouraged regular studying and rapid correction of mistakes. The majority of the pre-service teachers in the blended learning course that Dos (2014) studied described the learning experience as pleasant and adaptable. Moreover, Chookaew, Howimanporn, Pratumswan, Sootkaneung, and Wongwatkit (2019) concluded that student teachers' teaching skills regarding lesson plans, instruction materials, presentations, motivation, classroom management, and evaluation can be executed and enhanced through the blended micro-teaching process. The positive attitude of student teachers teaching with blended micro-teaching was the second advantage, as it allowed them to apply their technology-enhanced teaching skills to the teacher practice process.

3. Methods

The quantitative research method utilized for this study involved administering a survey questionnaire to pre-service teachers from different teacher training programs offered by different higher education institutions across all regions in Vietnam. This questionnaire was developed to assess student teachers' perspectives toward blended learning. It initially consisted of six sections and 36 items. The first

section, personal information, contained five demographic items. The second section, which contained eight items, inquired about participants' experience when participating in blended learning courses. The third section contained five 5-point Likert scale questions focused on students' opinions on instructors' activities during a blended learning course. A total of 18 questions comprise the final three sections (each section has six questions) that students answered on a 5-point Likert scale. Student-lecturer and peer interactions in blended learning, online and face-to-face components in blended learning, and their overall experience with blended learning are covered in these final three sections.

The questionnaire was designed in a Google Form. Several universities offering teacher training programs in different parts of Vietnam were sent questionnaires through links via email. A total of 624 students from eight teacher-training universities responded to the survey. These amounted to 557 females and 67 males, accounting for 89.3% and 10.7%, respectively. Among the respondents, 98% were in their early- and mid-twenties, with ages ranging from 18 to 28. Most were enrolled in 1 of 11 teacher-training specializations, and most respondents were in the second half of their coursework (Table 1). The largest numbers, 256 and 149 respondents, were trained to be Literature Studies and Early Childhood teachers, respectively. After collection, the data was fed into the computer system and statistically analyzed with SPSS.

Table 1. Research participants' demographic profile

		Frequency	Percentage (%)
Gender	Female	557	89.3
	Male	67	10.7
Year of study	1 st	125	20.0
	2 nd	104	16.7
	3 rd	159	25.5
	4 th	236	37.8
Field of study	Geography Teacher Education	21	3.4
	Chemistry Teacher Education	9	1.4
	Social Sciences Teacher Education	5	0.8
	History Teacher Education	15	2.4
	Early Childhood Teacher Education	149	23.9
	Literature Teacher Education	256	41
	Biology Teacher Education	26	4.2
	Educational Psychology Teacher Education	4	0.6
	Primary Teacher Education	51	8.2
	Mathematics Teacher Education	74	11.9
Physics Teacher Education	14	2.2	

4. Findings

4.1 Organization and delivery of blended learning

When asked about their prior experience with blended learning, 69% of the respondents claimed to have less than six months of experience in a blended learning form (Figure 1). In particular, 98% of first-year students and 80% of second-year students had less than six months of blended learning experience. This could be because high schools in Vietnam are not equipped for blended learning, meaning that blended subjects at university are the very first blended learning experience for first-year university students. Greater familiarity with blended learning was reported by third- and fourth-year students, with 25% to 51% of the students from these groups claiming to have studied in blended forms for more than one year.

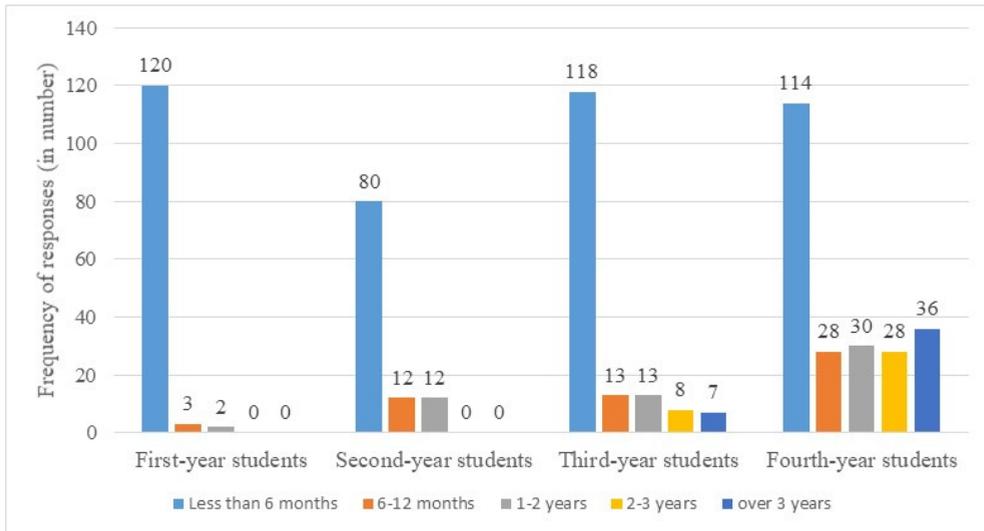


Figure 1. Students' experience with blended learning

The respondents were further asked how many subjects that they were enrolled in at the time of the survey were delivered in blended forms. The respondents reported a range of 0 to 18 blended subjects among a total of up to 22 subjects taught in their current semester. More blended subjects were delivered to first- and second-year students than to students in their third and fourth years. As shown in Table 2, first-year students studied over seven blended subjects, on average, while the figure went down by two for second-year students and by one for third- and fourth-year students. The reduced amount of blended learning as students progressed toward the completion of their coursework was likely due to students entering their supervised practicum, placement, and dissertation-writing stages, leaving less room for blended subjects.

Table 2. Average number of subjects delivered in blended learning by year of study

Year	M	SD
Year 1	7.48	2.702
Year 2	5.43	2.259
Year 3	4.40	2.578
Year 4	3.44	2.267
Total	4.82	2.859

Regarding time allocation of the online and face-to-face components in blended courses, the respondents reported that online instruction contributed rather significantly to the overall load in blended subjects (Figure 2). One hundred seventy-eight respondents (28.5%) reported having over three-quarters of their blended coursework delivered through the online mode and the remaining quarter delivered in face-to-face class teaching. One hundred forty-six respondents (23.4%) had over half of their instruction provided online. When asked about their preferences regarding how much online learning should be blended with face-to-face teaching, many respondents believed that online instruction should be reduced to less than 50% (266 respondents, accounting for 42.6%) or to less than 75% (182 respondents, accounting for 29.2%).

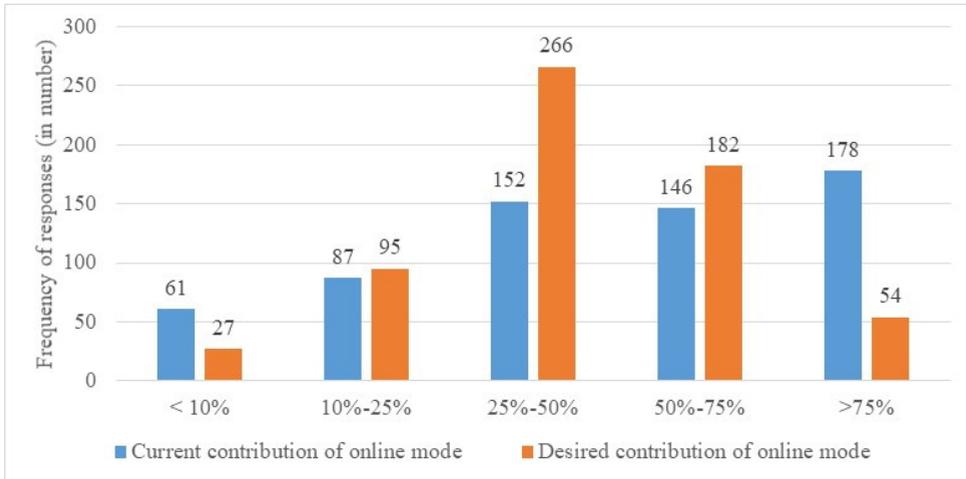


Figure 2. Contribution of online learning to the overall blended learning load

The survey asked the respondents to name the platforms on which their blended subjects were given. Across the surveyed institutions it was common for different platforms to be used in combination to facilitate blended teaching and learning. Table 2 shows the seven online platforms identified by the students and the frequency at which they were used. Zoom and university learning management systems (LMS) were the two most widely used platforms, each being recorded by 40.9% and 38.6% of the respondents, respectively. Approximately a third of the surveyed students accessed Microsoft Teams and Google Meet for blended learning. Social media platforms, namely Facebook and Skype, also played a role in blended learning, but Skype was significantly less popular.

Table 3. Blended learning platforms used at the surveyed institutions

Online learning platforms	Responses		Percent of cases (%)
	Count (N)	Percent (%)	
Zoom	255	21.4	40.9
LMS	241	20.2	38.6
Microsoft Teams	233	18.7	35.7
Google Meet	194	16.3	31.1
Google Classroom	135	11.3	21.6
Facebook	133	11.2	21.3
Skype	11	.9	1.8
Total	1192	100	191

Regarding learning resources, the respondents identified five major types of resources distributed on online learning platforms, namely PowerPoint slides, recorded lectures, discussion questions, reference materials, and announcements related to assessments (Table 4). PowerPoint slides were the most accessible learning materials on online learning platforms, with 84.8% of the respondents having access to them. Reference materials, mostly in the form of supplementary readings, were the second most common resource published online for blended courses, accounting for 66.7% of the cases reported. Discussion forums were also a preferred means of promoting students' interaction and engagement, making up of 64.3% of the cases, while 52.1% and 42.8% of the respondents had access to recorded lectures and announcements related to assessments on their online platforms.

Table 4. Learning resources used on online learning platforms

Learning resources	Responses		Percent of cases (%)
	Count (N)	Percent (%)	
PowerPoint slides	529	27.3	84.8
Reference materials	416	21.5	66.7
Discussion questions	401	20.7	64.3
Recorded lectures	325	16.8	52.1
Announcements on assessments	267	13.8	42.8
Total	1938	100	310.6

Among the resources listed above, the respondents valued the content-based resources as the most useful for their learning (Table 5); specifically, 72.8% of the respondents selected PowerPoint slides and 59.1% selected recorded lectures as the most practical learning resources. Almost half of the respondents also considered discussion questions and reference materials to be useful learning resources.

Table 5. Most useful learning resources as perceived by students

Learning resources	Responses		Percent of cases
	Counts	Percent	
PowerPoint slides	454	27.8	72.8
Recorded lectures	369	22.6	59.1
Reference materials	305	18.7	48.9
Discussion questions	296	18.1	47.4
Announcements on assessments	209	12.8	33.5
Total	1633	100.0	261.7

4.2 Overall satisfaction with blended learning

The students were asked to rate their overall satisfaction with blended learning according to six aspects. In particular, the respondents were asked to evaluate whether the quality of instruction, learning resources, peer and student-teacher interactions, and technological functionality met their expectations and whether their soft skills and self-discipline benefitted from blended learning. On a scale of 5, with a score of 1 indicating strong agreement with the statements and a score of 3 indicating a neutral stand, the study found a generally positive perception of blended learning by students across the institutions and years of study as seen in the mean scores clustering around the rating of 2 (Table 6). Becoming skilled in searching for information and benefiting from the rich materials were identified as the most positive experience for students (M=1.95 and M=1.99, respectively). The ratings were also rather consistent across the six aspects of blended learning. Generally, over a fifth expressed their strong agreement and around half of the respondents expressed their agreement that blended learning was useful.

Table 6. Students' overall experience with blended learning

Aspects of blended learning	M	Ratings* (%)				
		1	2	3	4	5
1. Learning materials from blended subjects are rich and diverse.	1.99	26.3	53.8	15.7	3.4	0.8
2. Blended learning helps me become more responsible for my own learning.	2.03	24.2	53.7	17.8	3.5	0.8
3. My skills in searching for information are improved thanks to blended learning.	1.95	26.8	56.7	12.3	3.0	1.1
4. I am confident in asking questions and joining discussions in blended subjects.	2.12	22.9	49.7	21.3	5.0	1.1
5. The technology used in blended learning is suitable for me.	2.03	24.0	54.8	16.2	3.8	1.1
6. Blended learning prepares me with the knowledge and skills I need for exams.	2.18	22.0	48.2	20.7	7.7	1.4

*1= strongly agree; 2= agree; 3= neither agree nor disagree; 4= disagree; 5= strongly disagree

Students' positive perceptions of blended learning, to some extent, were informed by their age, gender, years of study, and the intensity of their blended learning experience, as seen in Table 7. However, the relationship between the variables was not noticeably strong. It is worth noting that students' positive experience with blended learning tended to increase in line with greater exposure and familiarity with it (Table 8). In particular, the further students progressed in their coursework, the more positive they were likely to be about blended learning. Also, having a reasonable amount of online instruction, desirably between 25% and 50% of the total blended learning load, contributed to students' overall satisfaction (Table 9).

Table 7. Factors potentially impacting students' positive perception of blended learning

		Year of study	Gender	Experience with blended learning	Contribution of the online component	Overall Satisfaction with blended learning
Year of study	Pearson Correlation	1	-.020	.342**	-.082*	-.098*
	Sig. (2-tailed)		.625	.000	.042	.015
	N	624	624	624	624	624
Gender	Pearson Correlation	-.020	1	-.103**	.142**	.101*
	Sig. (2-tailed)	.625		.010	.000	.011
	N	624	624	624	624	624
Experience with blended learning	Pearson Correlation	.342**	-.103**	1	.026	-.104**
	Sig. (2-tailed)	.000	.010		.516	.009
	N	624	624	624	624	624
Contribution of the online component	Pearson Correlation	-.082*	.142**	.026	1	.098*
	Sig. (2-tailed)	.042	.000	.516		.014
	N	624	624	624	624	624
Overall satisfaction with blended learning	Pearson Correlation	-.098*	.101*	-.104**	.098*	1
	Sig. (2-tailed)	.015	.011	.009	.014	
	N	624	624	624	624	624

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 8. Students' overall satisfaction with blended learning in relation to their year of study

Year of study	Mean	N	Std. Deviation
1 st	2.56	125	.808
2 nd	2.57	104	.878
3 rd	2.46	159	.922
4 th	2.36	236	.770
Total	2.46	624	.839

Table 9. Students' overall satisfaction with blended learning in relation to the online component

Contribution of online instruction to the total study load	Mean	N	Std. Deviation
< 10%	2.45	61	.775
10% < 25%	2.35	87	.602
25% < 50%	2.32	152	.725
50% < 75%	2.50	146	.819
> 75%	2.60	178	1.028
Total	2.46	624	.839

Students' overall satisfaction with blended learning was further shown when they reflected on lecturers' activities in blended lessons (Table 10). The students, in general, positively acknowledged lecturers'

preparation, teaching, and support for meaningful learning. Over a third of the students surveyed strongly agreed with the statements about the quality of teaching and support from their lecturers, and almost half agreed with the statements in the survey. Learning resources and reference materials were the aspect that was most attended to by lecturers, with a mean score of 1.71. Lecturers were also perceived to use appropriate technologies and teaching pedagogies to suit the objectives and scope of blended learning (M=1.83 and M=1.90, respectively).

Regarding the organization of content delivery in blended learning, the study revealed that the foundational content was usually delivered in face-to-face sessions. Online sessions were often reserved for elaborating, consolidating, or discussing the content from face-to-face teaching and for preparing students with the skills and knowledge they needed for exams. Recorded lectures and PowerPoint slides were readily available on online platforms to facilitate the elaboration and discussions of content in online sessions.

Table 10. Students' perceptions of lecturers' activities in blended courses

Lecturers' activities	M	Ratings* (%)				
		1	2	3	4	5
1. Lecturers provide sufficient materials and references in blended lessons.	1.71	43.3	47.9	4.8	2.1	1.9
2. Lecturers use technologies effectively in blended lessons.	1.83	36.4	50.8	8.3	2.6	1.9
3. Lecturers use suitable pedagogies in blended lessons.	1.90	34	49.4	11.9	2.7	2.1
4. Lecturers have suitable means of supporting students with difficulties in blended learning.	1.98	31.1	48.7	13.6	4.2	2.4
5. Lecturers use suitable assessments for blended learning.	1.93	30.8	52.6	12	2.2	2.4

1= strongly agree; 2= agree; 3= neither agree nor disagree; 4= disagree; 5= strongly disagree

Table 11. Students' perceptions of online and face-to-face components in blended learning

Aspects of interactions	M	Ratings* (%)				
		1	2	3	4	5
1. Lecturers provide basic knowledge in online sessions.	1.74	35.4	57.4	5.8	1.1	0.3
2. Lecturers provide advanced knowledge in face-to-face sessions.	1.93	28.2	54.8	13.1	3.0	0.6
3. Face-to-face sessions include discussions of online learning content.	1.95	27.2	53.8	15.2	3.2	0.2
4. Online sessions sufficiently cover content and materials to prepare for assessments.	1.94	29.5	51.8	14.4	3.4	0.8
5. Online sessions contain recorded lectures and PowerPoint slides.	1.76	35.3	55	8.2	1.4	0.2
6. Content from online sessions is consolidated in face-to-face sessions.	1.94	27.6	54.2	14.7	2.6	0.5

1= strongly agree; 2= agree; 3= neither agree nor disagree; 4= disagree; 5= strongly disagree

Opportunities for interactions and the quality of interactions were an aspect that the respondents did not perceive to differ significantly between blended and traditional learning (Table 12). Students saw a slight increase in the peer and student-lecturer interaction time in blended lessons compared with lessons delivered purely by means of face-to-face teaching. However, the mean scores (M=2.7 to 2.8) were near the median score of 3, indicating some neutrality. Sixty percent of the students perceived that their workload increased in blended subjects compared with lecture-based ones, yet the remaining 40% perceived the workload to remain unchanged or even reduced. When asked to compare the quality of blended subjects with that of traditional subjects, the students showed some preference for the former, yet the mean score (M= 2.7), again, was not noticeably higher than the neutral score of 3.

Table 12. Students' perceptions of student-lecturer and peer interactions in blended learning

Interaction types	M	Ratings* (%)				
		1	2	3	4	5
1. Peer interaction time in blended learning compared with traditional learning	2.8	9.9	34.3	25	27.2	3.5
2. Quality of peer interaction in blended learning compared with traditional learning	2.8	9.9	31.4	28.4	26.9	3.4
3. Student – lecturer interaction time in blended learning compared with traditional learning	2.7	10.6	33	32.9	21.3	2.2
4. Quality of student – lecturer interaction in blended learning compared with traditional learning	2.8	12.2	32.4	32.7	20.8	1.9
5. Workload in blended courses compared with traditional courses	2.3	18.1	42.5	32.4	6.3	0.8
6. Quality of learning in blended courses compared with traditional courses	2.7	11.5	32.4	31.6	21.3	3.2

1= significantly increased; 2= increased; 3= the same; 4= reduced; 5= significantly reduced

5. Discussion

One notable finding in the current study is that students of teacher training programs have a generally positive perception of blended learning. This supports related research in this area that confirms the positive attitude toward the blended learning environment (Drysdale, Graham, Spring, & Halverson, 2013). Specifically, Owston et al.'s (2008) study demonstrated that among those who found the blended learning environment convenient and engaging, high achievers predominated, since they preferred the blended format over exclusive face-to-face or online modes when compared to low achievers. The literature depicts a surge in the implementation of blended learning at universities in developing countries, where they are dealing with enormous numbers of pre-service teacher education courses while striving to equip prospective teachers with ICT skills (Atmacasoy & Aksu, 2018). Most pre-service teachers, furthermore, described their learning experiences as pleasant and versatile when compared to exclusively online or traditional programs (Dos, 2014). Similarly, Graham et al. (2013) proposed that blended learning experiences establish a stronger sense of community among students. Most learners value both the wealth of interactions in a face-to-face environment and the resilience, convenience, and reduced opportunity costs associated with online learning, as most of the evidence details.

Upon close inspection of instructional variables in blended learning, the following are the four critical categories of instructional design: quality of instructor, quality of learning activity, learning support, and study workload (Kim, Baylen, Leh, & Lin, 2015). Lecturers' preparedness, teaching, and support were positively acknowledged by over two-thirds of the students surveyed by the study. Evidently, the role of the instructor is a decisive factor for a good blended learning environment (Singer & Stoicescu, 2011). The results of this study may fill part of the gap that previous researchers (e.g., Delialioğlu, 2012; Drysdale et al., 2013; Halverson, Graham, Spring, Drysdale, & Henrie, 2014) have noted regarding instructors' role and practices in blended learning environments.

A crucial component of a blended learning environment is communication, and feedback was highlighted by Kocaman Karoğlu, Kiraz, and Özden (2014). In their study, participants reported that communication with peers and teachers were furthered and group and peer learning enhanced through the use of blended learning. Similarly, Dos (2014) found a correlation between learner interaction and satisfaction in blended courses. Additionally, Chamberlin and Moon (2005) observed the potency of interaction between students and instructors in blended learning courses. The current study supports these studies' findings by showing that students in teacher training programs saw an increase in the peer and student-lecturer interaction time in blended lessons compared with lessons delivered purely by face-to-face teaching.

As benefits of both face-to-face and online modes are combined, students prefer blended learning (Collopy & Arnold, 2009; Farley, Jain, & Thomson, 2011; Huang, 2016). In the students' views, the two learning modes interact well within the blended course. As results of the current study demonstrated, the two learning methods are constructive and complement each other by making the other more

intriguing and effective. This suggests that online and face-to-face components should reflect the learning outcomes of the module and there should be a balance between components. As revealed by the study, the component of online learning within blended learning should be less than 50%, or at least less than 75%. Although this depends on the subject, the student's qualifications, and the teacher's skills, the online portion of the blended learning experience should constitute between 30-79%, which is consistent with the existing literature (Dos, 2014).

6. Conclusion

The current study, which aimed to investigate Vietnamese pre-service teachers' perceptions regarding the use of blended learning in their training programs, revealed that most participants preferred blended learning to either online or face-to-face learning alone. It is, therefore, safe to conclude that when blended learning was incorporated in their courses, pre-service teachers in Vietnam expressed a positive response to it. According to the findings, lecturers' activities in blended lessons, including learning material provision, technology implementation, teaching and assessment methods, and student support were all considered valuable. Moreover, students' overall satisfaction with blended learning was quite high. They expressed their satisfaction with the quality of instruction, learning resources, peer and student-teacher interactions, and technological functionality. The main reasons why blended learning is effective in teacher training courses in Vietnamese higher education is because of the balance of the online and face-to-face components and student-lecturer and student-student interactions in blended learning. However, this study only examined what pre-service teachers believed and experienced and not what they achieved in the blended learning environment. The findings of pre-service teachers' perception may be more revealing if further research investigates their performance in blended learning courses.

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