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Policy Recommendations for Blended Learning in Higher Education in Vietnam

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Abstract

This paper presents the results of a status assessment and policy recommendations for blended learning in higher education in Vietnam. To collect data on the status, a questionnaire survey was conducted at 3 universities and colleges in Ho Chi Minh City with 1,138 students participating in the survey. The survey results were analyzed using the Statistical Package for the Social Sciences (SPSS). By comparing the survey data with the qualitative research results available for analysis, the findings show that blended learning offers significant benefits in the digital age. However, this learning method still has disadvantages such as significantly reducing direct interaction between lecturers and students, and the learning experience of students is also reduced. The requirements for improving students' selection of learning activities and self-management skills are higher, while universities lack effective quality management systems. Inadequate information technology infrastructure and equipment hinder effective online learning. Some students feel heavy pressure to study, have low self-awareness, and when switching to a new learning method lacking direct supervision and instruction from lecturers, their motivation and study habits have decreased. Blended learning requires frequent changes in methods, depending on the field of study and the conditions of each university. To address these practical challenges, the paper proposes a comprehensive government strategy for blended learning that aims to promote learning motivation, improve online teaching skills, and develop infrastructure for digital content in universities. These macro-level policies are crucial for promoting blended learning in higher education in Vietnam.

Keywords: blended learning, policy, higher education, students, Vietnam.

1. Introduction

The concept of "blended learning" has been around since the 2000s and is now widely used, especially since the COVID-19 pandemic. Young (2002) noted that the combination of online and

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traditional face-to-face teaching is not yet widely recognized for application in higher education, although it is a major trend. The American Society for Training and Development believes that blended learning will be in the top 10 trends in higher education in the coming decades and the number of blended courses will continue to increase, potentially reaching 80 % to 90 % of all courses (Rooney, 2003). By 2005, Bonk and Graham had outlined the fundamentals of blended learning systems and discussed trends in their implementation. In K-12 education, blended learning has emerged as a powerful new approach in the United States (Barbour, 2019; Long et al., 2020).

Following the global trend, in Vietnam, the Ministry of Education and Training (2016, 2021) has issued many documents requiring implementing online teaching and learning. Recently, the Project "Enhancing the application of information technology and digital transformation in education and training in the period 2022–2025, with a vision to 2030" was the Prime Minister approved (Prime Minister, 2022). This project has created a legal basis for the implementation of blended learning at universities. The objectives of this project are: i) Innovating teaching and learning activities, focusing on people, and equipping lecturers and students with the necessary awareness and skills to apply information technology and digital transformation. There must be strong directives across all sectors and levels to engage educational institutions and the entire society in this initiative; ii) By 2030, ensure that managers, lecturers and students have access to a strong national online teaching and learning platform and strongly implement digital transformation in the education sector; iii) Prioritize investment in building digital infrastructure, establishing a strong teaching and learning environment and teaching management; develop open learning resources for users to use for free anywhere, anytime.

Talking about blended learning, although it has been applied in educational institutions for many years, but very sporadically, it has really become a mainstream trend in the past few years (To, 2012). It was not until 2020 that this learning method gained more attention from scholars, partly due to the impact of the Fourth Industrial Revolution and the necessity imposed by the COVID-19 pandemic (Vo, 2023). Therefore, blended learning is still a new method in Vietnam.

Thus, in the context of strong digital transformation, the implementation of blended learning still faces many challenges in universities. The research questions that need to be answered are: i) What are the benefits and advantages that blended learning brings to teaching? ii) If blended teaching and learning is implemented, what difficulties and challenges will higher education institutions face? iii) In addition to the difficulties of lecturers, what challenges must students overcome to learn effectively?

Based on such a context, it is urgent and relevant to conduct a survey and assessment to accurately perceive the current situation, thereby finding answers to the above questions and recommending policies for developing blended learning at universities in the coming time.

2. Literature Review

The concept of blended learning: Over the past 20 years, the concept of blended learning has emerged as a central term in education (Singh, Thurman, 2019). Currently, blended learning is understood as a teaching method in which direct learning time and online learning time are allocated reasonably, helping teachers and students complete the course most effectively. According to Bonk, Graham (2006), blended learning includes both direct instruction and indirect instruction through devices and the Internet. Picciano (2007) describes it as the planned and pedagogically meaningful integration of online and face-to-face activities. Horn, Staker (2014) pointed out that blended learning is an educational program in which online and face-to-face learning takes place at appropriately selected times. In this process, the lecturer is the instructor, students collaborate and teaching content and learning methods are coordinated to achieve the objectives of the subject. In Vietnam, the Ministry of Education and Training (2016) defines blended learning as a combination of online and traditional teaching methods to improve the effectiveness and quality of education.

The benefits of blended learning: There are 6 following benefits, as pointed out by Bonk, Graham (2016) and agreed upon by most researchers, listed as follows: 1) Teachers' teaching and students' learning are diversified with many situations with many different opportunities, pedagogical richness is liberated. The combination of different learning spaces allows for extended learning time and the incorporation of more suitable activities within each space; 2) Students and teachers always have equal access to educational resources and knowledge. Multiple and convenient communication channels help reduce the time spent on secondary tasks, thereby

providing more time to focus on pedagogical activities to improve training efficiency. Digital educational resources are provided openly, are easily accessible online, and are always available; 3) Blended learning helps learners choose their time proactively and is not bound by the requirement to be present at training facilities, making it easier to adapt. Consequently, it increases social interaction; 4) It provides opportunities for increased learner autonomy by combining the benefits of direct interpersonal interaction and online settings, making it more effective than other teaching methods (Kerres, De Witt, 2003; Pratt, 2002). This aligns with the multimedia theory, which suggests that richer media enhance learning ability, particularly for complex tasks (Daft, Lengel, 1986); 5) The cost of blended learning is reduced, increasing economic efficiency for both service providers and learners. Therefore, the cost of courses will decrease, allowing additional funding for improving access to educational resources and helping teachers improve access to resources (Graham, 2013); and 6) Garrison and Kanuka (2004) pointed out that with its advantages, blended learning promotes the integration of advanced technologies, redesigns the curriculum and fosters learning communities, thereby promoting the digital transformation of universities. It increases student interest, awareness, and satisfaction, motivating them to engage more deeply in the learning process. Dziuban et al. (2006) noted that with blended learning, student satisfaction is higher than with traditional face-to-face courses.

Difficulties and challenges when applying blended learning: When assessing the current situation of blended learning in some areas, the authors pointed out 6 difficulties arising in its application (Bonk, Graham, 2006; Cojocariu et al., 2014; Graham, 2018), specifically as follows: 1) Blended learning has significantly reduced the direct interaction between teachers and learners. They must significantly change their discussion and debate habits from face-to-face to online indirect. Learning is spread out at different times and places. Differences in culture, language, communication skills and technological level are also barriers. Asynchrony or lack of equipment also contributes to communication barriers; 2) The time for students to switch from direct to indirect interaction is a long and difficult process. They need to be able to choose learning activities and adjust their learning according to actual conditions so as not to be affected. In addition, many students' planning and time management skills are not good, which can create frustration and boredom with learning; 3) The biggest challenge is to build and maintain a quality Learning Management System and create a safe and effective online learning environment. Developing countries also face additional difficulties in training and improving technological skills for both teachers and students, redesigning learning environments to suit blended learning models, ensuring coherence between online and traditional learning activities; 4) Creating a harmonious structure between creativity and learning poses great challenges. Universities are always under pressure to design creative learning activities and choose supporting technologies that are suitable for their economic conditions. While learning creativity, they must avoid relying too much on technology; 5) Establishing an effective learning environment is always under pressure from the need to adapt to culture, change habits, and expectations of individuals. This is a complex and difficult task; and 6) Blended learning requires both teachers and students to have adequate learning devices (such as computers, smartphones, and an Internet connection with adequate speed). Insufficient or inconsistent basic equipment also creates barriers that are difficult to overcome. The reality is that today, educators and students either lack devices or have inconsistent devices, but they cannot afford to buy uniform ones. Private space for online teaching and learning is also a challenge for many. On the other hand, technical problems when using digital devices such as download errors, installation problems, login problems, and audio and video glitches are also common. The above challenges are certainly more serious for developing countries that lack infrastructure and equipment. For example, in Malaysia, Jong et al. (2021) identified limited internet connectivity and a lack of information and communication technology skills among students as two major issues requiring intervention. In contrast, Olaniran et al.'s (2020) study in South Africa found that students' lack of skills to apply new technologies was a significant factor, despite the availability of infrastructure.

The models are often used in blended learning: The characteristic of blended learning is that it is necessary to use many different learning models. Depending on the goals and content of the course, the learning model must be adjusted appropriately. Staker & Horn (2012) has proposed 6 blended learning models as follows: 1) "Face-to-Face Driven" model - With this model, more time is spent on traditional classroom learning than online learning; 2) In the "Rotation" model, learning is organized alternately between online learning and face-to-face learning; 3) With the

"Flex" model, students learn mainly online with a personalized learning schedule; 4) "Online Lab" model, after studying face-to-face, students are allowed to participate in additional online courses to perfect their knowledge and skills; 5) With the "Self-Blend" model, in parallel with studying face-to-face at their university, students are allowed to take online courses outside; and 6) The "Enriched Virtual" model organizes students to study mainly online, occasionally coming to the university to participate in direct experiences.

Choosing the right blended learning process for each subject can be quite difficult. However, Bokolo et al. (2020) suggest that to successfully implement blended learning, the process must consider interactive activities (direct and indirect), accessibility to learning resources; testing, assessment, and feedback for students when building the process. The four learning processes selected for the survey were selected as follows:

a. Margie (2003) offers a three-step process: 1) Step 1. First classroom learning session; 2) Step 2. Online learning; and 3) Step 3. Final classroom learning session. In this approach, face-to-face instruction is employed at the beginning for orientation activities and at the end for assessment and conclusion. Meanwhile, online teaching is utilized in the intermediate phase for exchanges and discussions aimed at resolving any remaining issues.

b. Author Lewis, Orton (2005) proposed a 3-step process: 1) Step 1. Students' self-study online to research basic knowledge, apply knowledge and skills learned through computer networks; 2) Step 2. Organize direct learning in class to practice knowledge application skills; 3) Step 3. Through online learning, lecturers guide students to debate and discuss in groups to deepen knowledge and practice necessary skills.

c. Ginns, Ellis (2007) c. Ginns & Ellis (2007) outline a four-step process: 1) Step 1. The instructor delivers lesson knowledge directly in the classroom; 2) Step 2. The instructor organizes face-to-face classroom discussions for students to deepen their knowledge; 3) Step 3. Students organize online self-study either individually or in groups; and 4) Step 4. Organize face-to-face learning to review previously learned concepts and knowledge. This process places more emphasis on face-to-face instruction. Experiments on this model show that instructors guiding lessons through face-to-face interactions have helped students better prepare for online lessons.

d. Btzer et al. (2015) proposed a five-step process: Step 1. Before the course begins, the instructor introduces the objectives and structure of the lesson and identifies the responsibilities of the parties involved; 2) Step 2. The instructor guides the students on how to approach the learning content in class; 3) Step 3. The students study online to research and gain a deeper understanding of the lesson objectives and content; 4) Step 4. All students come to class to be directly guided by the lecturer to summarize the lesson and discuss to solve remaining problems; 5) Step 5. The instructor and students evaluate the teaching and learning outcomes. With this process, the instructor directly guides the identification of learning objectives, imparts knowledge, and develops skills for the students.

It has been noted that the benefits, challenges and difficulties associated with the implementation of blended learning have been extensively and systematically studied, but it has not become an official trend. When the COVID-19 pandemic hit, online teaching became a mandatory requirement, there was no other choice. All educational institutions were required to organize online teaching and as seen, many difficulties and challenges have arisen in most countries around the world. Therefore, educational administrators were forced to look for solutions to these problems. Some notable examples include:

i. According to D'Souza et al. (2020), in the United States, teachers have rapidly shifted to online instruction for STEM students. However, at Wesley University, STEM students faced challenges such as economic disparities, increased family responsibilities, the need to stay motivated, social isolation, and heightened psychological stress.

ii. In response to the COVID-19 pandemic, Taiwanese scholars aim to address the multidimensional challenges of e-learning, thereby optimizing learning solutions. They recommended that policymakers and educators develop a more comprehensive technical environment to support the ongoing adoption of e-learning systems. Furthermore, when designing high-quality elearning courses, they have relied on students' perceptions and attitudes as a key factor in addressing how to interact and build learning models (Lee et al., 2021).

iii. To adapt to the new educational context, Ukraine has developed an algorithm for establishing business training centers. This is a multi-stage process that considers, for example, management support, the creation of a legal basis and financing of activities. Ensuring support

conditions, content development, personnel training and control mechanisms are also carefully considered (Bondar et al., 2020).

iv. Malaysia is a country with similar conditions to Vietnam, the sudden change from face-to-face to online teaching requires teachers to quickly adapt to many issues. Factors such as infrastructure, online resources, and the work environment significantly influenced teachers' use of online educational technology in their teaching activities. Ensuring the necessary infrastructure and conditions is crucial to helping teachers design and effectively use online educational tools (Kai Wen, Tan, 2020).

In Vietnam, the Government (2022) has issued a policy to innovate educational organization methods and transform teaching into a digital environment. Universities must encourage lecturers and students to make digital transformation an essential daily activity for them. It is society's responsibility to ensure that teachers and learners have the necessary resources to enable them to engage in online teaching and learning activities. In that context, the results of blended learning that Vietnamese universities have achieved are not enough. There are still many difficulties and challenges (Dinh, 2020; Dinh, Vo, 2021; Hoang, 2015; Ho, 2021; Nguyen, 2018; Nguyen et al., 2020; Vu, Nguyen, 2019; Vu, 2020). In fact, many cases have shown that even when management levels have provided full and clear guidance, the implementation of activities in general and blended learning in particular at universities still encounter great difficulties. To meet the objectives set by the Prime Minister, it is crucial to accurately assess the current situation regarding the benefits and challenges and identify suitable processes for organizing blended learning to propose future development policies.

3. Research Methodology

3.1. Research Design

To analyze student preferences for blended learning, 1,138 students from three universities and colleges in Ho Chi Minh City (HCMC) were surveyed. Students were asked to choose an objective, anonymous response from five levels ranging from the lowest (1.0 points) to the highest (5.0 points). The questions are based on research results from scholars worldwide addressing the following problem groups:

a. Regarding the advantages and benefits of blended learning, there are 6 questions based on the research results of Bonk, Graham (2016), Kerres, De Witt (2003), Pratt (2002), Daft, Lengel (1986), Garrison, Kanuka (2004), and Dziuban et al. (2006) asking about 6 benefits: Diversity and effectiveness of teaching; increased access to knowledge; flexibility in arranging teaching and learning time; creating opportunities for autonomy in choosing teaching and learning methods; reducing costs for teachers, learners and society; and managers, lecturers and students can adjust their time flexibly.

b. Regarding the difficulties and challenges, the selected questions from studies by Bonk, Graham (2006), Cojocariu et al. (2014) and Graham (2018) confirmed: Direct interaction between subjects in the teaching and learning process is reduced; students may have difficulty choosing learning activities that match their goals, abilities and interests, often lack self-management skills and struggle with problems of distraction, lack of concentration and motivation. There is also significant pressure to design innovative learning activities and choose appropriate technological tools to support learning, without becoming too dependent on technology.

c. Regarding individual students' difficulties with 6 contents: i) Weak Internet connection, users lack necessary skills, reducing interaction; ii) The supervision of lecturers changes from direct to indirect, a part of students with low learning awareness may be affected in their learning outcomes; iii) The interaction between people and computers when learning online creates a one-way, boring feeling; iv) Insufficient learning materials, learning software and learning management; v) The infrastructure supporting blended learning of society, of universities, as well as of lecturers and students is lacking or not synchronized enough; and vi) The current society's mentality of only caring about degrees makes students learn to cope, the quality is reduced more than face-to-face learning.

d. Regarding the choice of blended learning processes with 4 processes by Margie (2003), Lewis & Orton (2005), Ginns & Ellis (2007), and Btzer et al. (2015) with steps as described above.

e. Finally, regarding the choice of duration structure between online and face-to-face learning with 4 options: Option 1 is 30 % online/70 % face-to-face, option 2: 20/80 %, option 3: 40/60 %, and option 4: 50/50 %.

Survey data were collected through Google Forms. SPSS software (IBM, 2024) was used for data processing. 07 variables related to blended learning were included for analysis and evaluation are: i. Advantages and benefits; ii. General difficulties and challenges; iii. Difficulties of students and families; iv. Blended learning process 1; v. Process 2; vi. Process 3; and vii. Process 4. Assessment of the current situation was reviewed and analyzed using Boxplot charts and non-parametric tests. To analyze student preferences regarding the structure and duration of blended learning processes, Chi-Square Tests were used. The assessments and evaluations of the current state of blended learning were confirmed through a combination of quantitative results and existing qualitative results from practical studies.

3.2. Survey Sample and Respondents

To ensure diversity in the research area, the survey sample was selected from 3 public universityies in HCMC with different characteristics: 1) Saigon University with 373 selected pedagogy students as respondents, this is a major with fewer practical exercises and experiments; 2) HCMC University of Technology and Education, a university with more practical exercises and experiments, selecting 218 students; and 3) Cao Thang Technical College with 547 selected students, this is the school with the most experiment and practical hours among the three chosen schools. All three university and coleege admit students from many regions of Vietnam, with the majority from southern provinces of Vietnam. The social composition and economic conditions of 1,138 selected students from 3 schools' enrollment are basically similar, with no significant differences.

3.3. Collect and Process Survey Data and Reliability of Results

After verifying the accuracy of all responses, the data were uploaded to SPSS software for processing. The Cronbach's Alpha tool was used to assess the reliability of the 5-point Likert scale (see Table 1).

Table 1. Assessment of Data Reliability Outcomes

	Reliability Statistics		Corrected Item-Total Correlation					
	Cronbach's Alpha	N of Items	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
The advantages and benefits of blended learning	0.879	6	0.702	0.695	0.797	0.784	0.638	0.701
Difficulties and challenges of blended learning	0.891	6	0.677	0.728	0.741	0.732	0.722	0.666
Difficulties of individual students when participating in blended learning	0.884	6	0.642	0.724	0.710	0.739	0.703	0.654
Blended learning processes should be selected	0.766	4	0.560	0.542	0.603	0.559	-	-

The results obtained in Table 1 confirmed that the Cronbach's Alpha values for the four variables (where the Blended Learning Process is the combined result of three component variables) are all greater than 0.7, and the correlation values for each variable are all greater than 0.3. Therefore, the scale and variables used in the survey are appropriate and reliable.

4. Discussion and Results

4.1. Student Evaluation and Preferences

4.1.1. Student Perceptions of Advantages and Benefits

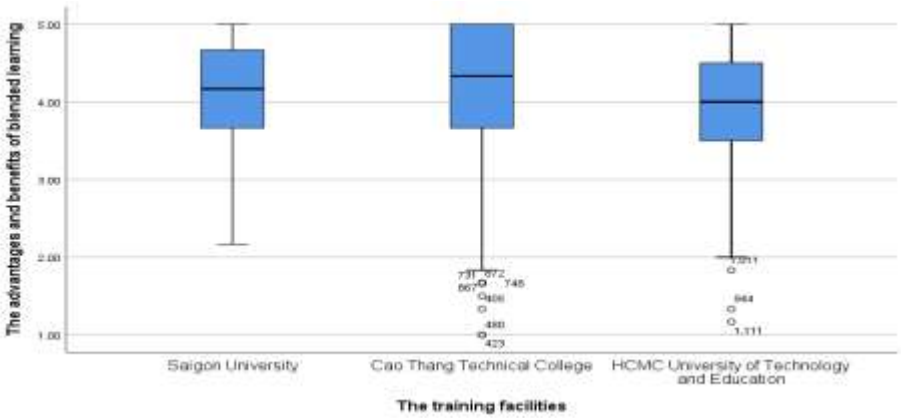

Fig. 1. Boxplot Illustration of the Advantages and Benefits of Blended Learning

As shown in Figure 1, most students highly appreciated the overall advantages and benefits of blended learning. Although there are still a few exceptions, the distribution of data allows us to confirm that most students believe that blended learning has superior advantages over traditional teaching methods. According to the survey data, the proportion of students giving the highest rating for the six benefits and advantages at Saigon University ranges from 30.3 % (for activities with more diverse, tightly integrated, and effective teaching) to 54.2 % (for more autonomy in time management for teachers and students). At Cao Thang Technical College, the range is from 41.9 % (for diverse, tightly integrated, and effective teaching activities) to 55.8 % (for more autonomy in time management for teachers and students). At HCMC University of Technology and Education, the range is from 31.2 % (for activities with more diverse, tightly integrated, and effective teaching) to 44 % (for more autonomy in time management for teachers and students).

Table 2 of the non-parametric test results shows the difference in evaluation among the 3 educational institutions (p value = 0.0 < 0.05). Pairwise analysis shows that: i) The pair of Saigon University and Cao Thang Technical College has no difference (p value = 0.116 > 0.05); ii) the pair of Saigon University and HCMC University of Technical Education shows a difference (p value = 0.002 < 0.05), in which Saigon University students rate higher (Average rating: 312.95 > 267.00); iii) The pair HCMC University of Technical Education and Cao Thang Technical College also showed a difference (p value = 0.000 < 0.05), in which students from Cao Thang Technical College had a more positive assessment (Average rating: 403.18 > 332.36).

Table 2. Kruskal-Wallis Test Results on the Advantages and Benefits of Blended Learning

Ranks				Test Statistics [a, b] The advantages and benefits
The advantages and benefits of blended learning	The training facilities	N	Mean Rank	
	Saigon University	373	569.92	Kruskal-Wallis H 18.053
	Cao Thang Technical College	547	600.95	df 2
	HCMC University of Technology and Education	218	489.86	Asymp.Sg .000
	Total	1138		a. Kruskal Wallis Test b. Grouping Variable: The training facilities

4.1.2. Regarding the difficulties and challenges of blended learning

It is noteworthy that when assessing the challenges, the opinions of students at the three educational institutions were remarkably similar (Figure 2). Among the 6 challenges surveyed, students at Saigon University who rated them at the lowest level ranged from 2.9 % (on students' difficulties in choosing learning activities) to 4.6 % (on teachers and students having difficulty in synchronizing the necessary equipment). At Cao Thang Technical College, these assessments

ranged from 4.4 % (on challenges in establishing and maintaining a quality teaching management system) to 7.9 % (on teachers and students having difficulty in synchronizing the necessary equipment to participate in teaching and learning). At HCMC University of Technical Education, assessments ranged from 2.8 % (on students' difficulty in choosing learning activities that fit the course objectives) to 6.9 % (on reduced direct interaction between teachers and students, students and students).

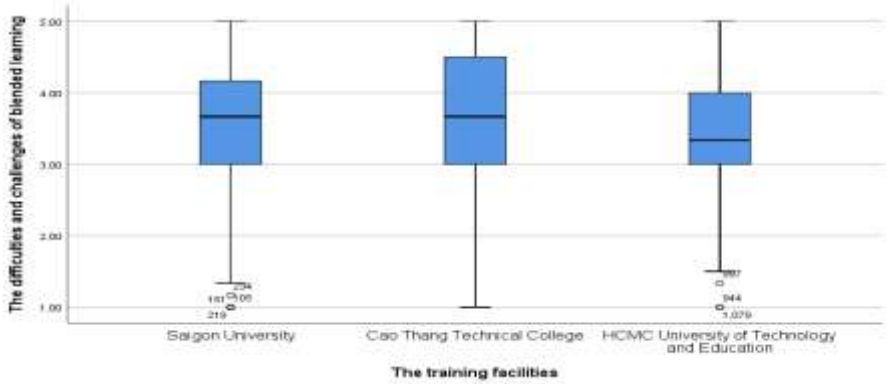

Fig. 2. Boxplot Chart on the Difficulties and Challenges of Blended Learning

The non-parametric test results show a difference in evaluation among the three schools (p-value = 0.001 < 0.05, Table 3). Pairwise comparisons revealed that: i) Saigon University and Cao Thang Technical College show no difference (p-value = 0.446 > 0.05); ii) Saigon University and HCMC University of Technology and Education exhibit a difference (p-value = 0.002 < 0.05), with Saigon University students rating higher (Mean Rank: 312.42 > 267.9); and iii) HCMC University of Technology and Education and Cao Thang Technical College also show a difference (p-value = 0.001 < 0.05), with students from Cao Thang Technical College perceiving greater difficulties (400.28 > 339.63).

Table 3. Kruskal-Wallis Test Results in Difficulties and Challenges of Blended Learning

Ranks				Test Statistics [a, b]
	The training facilities	N	Mean Rank	The difficulties and challenges
The difficulties and challenges of blended learning	Saigon University	373	577.86	Kruskal-Wallis H 13.276
	Cao Thang Technical College	547	592.28	df 2
	HCMC University of Technology and Education	218	498.03	Asymp.Sg .001
	Total	1138		a. Kruskal Wallis Test b. Grouping Variable: Educational Institutions

4.1.3. Regarding Individual Students' difficulties

The Boxplot chart (Figure 3) illustrates a slight reduction in the recognition of individual students' difficulties in meeting the requirements to engage in blended learning in engineering majors. According to survey results, among the six challenges students face, the most significant difficulties are as follows: At Saigon University, 35.4 % of students said that difficulties with the Internet, skills and study locations were the most challenging factors; 34 % believed that students' learning attitudes to cope would increase dangerously; 27.9 % believe that when there is no direct supervision, students can avoid testing and supervision from teachers. These challenging problem groups yielded nearly identical results at Cao Thang Technical College, with 36.6 %, 35.6 % and 32.9 % rated it at the highest level. At HCMC University of Technical Education, the most challenging problem groups had lower selection frequencies (24.8 %, 24.8 % and 21.1 %, respectively) but were consistent in the nature of the challenges.

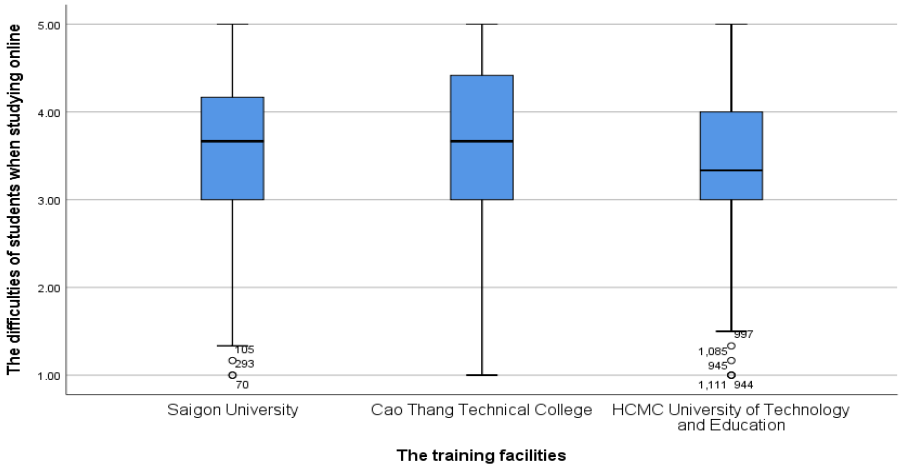

Fig. 3. Boxplot Chart of Individual Student Challenges in Blended Learning

The results of the assessment of the difficulties and challenges of blended learning were generally consistent. However, there was also a small difference in the distribution of selected opinions among the three universities and colleges based on the non-parametric test (p value = 0.012 < 0.05, Table 4). The results for Saigon University and Cao Thang Technical College are essentially similar (p-value = 0.832 > 0.05), yet students at Cao Thang Technical College still perceive more difficulties (Mean Rank: 462.03 > 458.26). When comparing HCMC University of Technology and Education with Saigon University, and HCMC University of Technology and Education with Cao Thang Technical College, there are noticeable differences in evaluation (p-values are 0.002 and 0.008, respectively, both < 0.05). In both comparisons, students from HCMC University of Technology and Education rate the difficulties lower than those from the other two institutions.

Table 4. Kruskal-Wallis Test Results on Individual Students' Difficulties in Participating in Plended Learning

Ranks				Test Statistics [a, b] The difficulties of students
The difficulties of students when studying online	The training facilities	N	Mean Rank	
	Saigon University	373	582.27	Kruskal-Wallis H 8.773
	Cao Thang Technical College	547	584.33	df 2
	HCMC University of Technology and Education	218	510.43	Asymp.Sg .012
	Total	1138		a. Kruskal Wallis Test b. Grouping Variable: The training facilities

4.1.4. Regarding the Selection of Blended Learning Process

The analysis of student choice frequencies and Boxplots shows a clear distinction in the choice of blended learning processes. This shows that it is difficult to identify a specific process. Managers who want to have the right policy need to consider the actual conditions of each university and each specific location to choose the optimal option. The best option may be to increase the autonomy and self-responsibility of colleges and universities. The results of the options are as follows:

a. Process 1: Students from Saigon University have an average score of 4.0, with 36.2 % considering it reasonable, 30.6 % fairly reasonable, and 21.4 % extremely reasonable; Cao Thang Technical College students are 4.0, 28.3 %, 21.4 %, and 37.5 %; and HCMC University of Technology and Education students are 3.0, 36.7 %, 26.6 %, and 20.2 %, respectively. At Cao Thang Technical College, students tend to choose Process 1 more.

b. Process 2: Saigon University students have the following choices in order: Reasonable, fairly reasonable, extremely reasonable are 4.0 %, 30.8 %, 30.6 % and 27.3 %; Cao Thang Technical College students have 4.0, 29.3 %, 20.3 % and 37.3 % respectively; and HCMC University of Technology and Education 3.0, 39.0 %, 26.1 % and 19.7 %. Saigon University and Cao Thang Technical College students tend to like Process 2 more.

c. Process 3: The order of the above-mentioned choices of Saigon University students is 4.0, 24.9 %, 32.4 % and 33.2 %; Cao Thang Technical College students have 4.0, 27.4 %, 23.4 % and 37.8 %; and University of Technical Education 4.0, 29.8 %, 33.9 % and 21.1 %. Students at Saigon University and Cao Thang Technical College tend to prefer Process 3 more.

d. Process 4: Saigon University 4.0, 19.6 %, 32.7 %, and 40.5 %; Cao Thang Technical College 4.0, 26.5 %, 21.2 %, and 43.7 %; HCMC University of Technology and Education 4.0, 28.9 %, 35.8 %, and 24.8 %.

In general: Saigon University students tend to choose processes 2, 3, and 4. Cao Thang Technical College students tend to like all 4 processes. HCMC University of Technical Education students tend to not like all processes.

4.1.5. Regarding the Selection of the Duration Structure between Online and Face-to-face learning

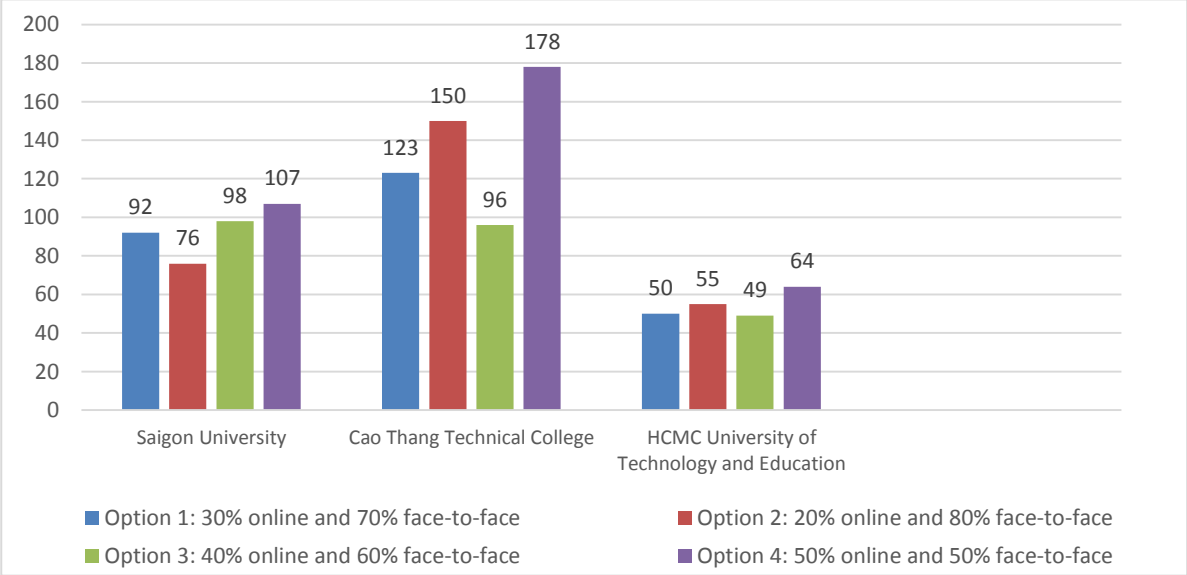

Fig. 4. Chart Describing the Number of Opinions on Choosing the Duration of Learning

A visual representation of the number of opinions on choosing the duration structure (Figure 4) shows that differences in opinions are more pronounced in Cao Thang Technical College and Saigon University.

The results of the Chi-Square test, with Sig value = 0.027 < 0.05, can make the following comments about students' choices:

a. Saigon University: Pairs with observed frequency lower than expected are options 2 and 4, specifically 76/92.1 and 107/114.4. Accordingly, options 2 and 4 are related and significantly decrease in option 2. Pairs with observed frequency higher than expected frequency are options 1 and 3, specifically 92/86.9 and 98/79.6. Therefore, options 1 and 3 are related and increase in option 3.

b. Cao Thang Technical College: Pairs with observed frequency lower than expected are options 1 and 3, specifically 123/127.4 and 96/116.8. Therefore, options 1 and 3 are related and decrease significantly in option 3. Pairs with observed frequency higher than expected frequency are options 2 and 4, specifically 150/135.1 and 178/167.8. Therefore, options 2 and 4 are related and increase significantly in option 4.

c. HCMC University of Technology and Education: Pairs with observed frequency lower than expected are options 1 and 4, specifically 50/50.8 and 64/66.9. Thus, options 1 and 4. Pairs with observed frequency higher than expected are options 2 and 3, specifically 55/53.8 and 49/46.6. Thus, options 2 and 3 are related; the deviation between options is not significant.

4.2. Essential Insights from the Scenario

a. Most students appreciate the benefits and advantages of blended learning, especially overcoming the disadvantages that traditional methods cannot do. The perception of specific benefits also varies among students in different fields of study with different durations of practical and experimental learning. These results are consistent with the evaluations of regulatory agencies (MOET, 2016; MOET, 2021; Prime Minister, 2022) and are quite consistent with previous scientific studies (Dinh, 2020; Vo, 2023). These findings further emphasize the need for blended learning implementation. On the other hand, it is of particular importance to tailor the blended learning organization process to the characteristics of each learning area.

b. The various challenges and obstacles identified by students at three different educational institutions indicate significant barriers to the implementation of blended learning. The difficulties focus on the following issues: Barriers to interaction shift from direct to indirect interaction; difficulties arise in choosing learning; students lack self-management skills; students may lose focus and lack motivation to learn; difficulties in establishing and maintaining a quality teaching management system; difficulties in social information technology infrastructure. The recognition of these challenges in blended learning also varies between different disciplines and different universities. This reality has also been identified by the highest management levels (MOET, 2021; Prime Minister, 2022) as the guiding principle for the development of blended learning by management levels and universities in the coming period. These are requirements for issuing policies to remove barriers.

c. The challenges faced by students focus on the very basic issues of blended learning (from content, methods to media). The assessments were conducted from many different perspectives both in teaching and teaching management at universities and are consistent with most recent studies in Vietnam. All identified this as an important issue that managers must pay attention to (Nguyen et al., 2020; Vu, Nguyen, 2019; Vu, 2020; Vo, 2023). This reality requires administrators to implement social policies to support infrastructure and teaching equipment that combine both students and universities.

d. The choice of training process also varies in degree between schools and training majors. This is also a pressure for university administrators in deciding on the choice of process for blended learning. Considering the aggregated data according to the average value of the three levels of reasonable, quite reasonable and extremely reasonable, the results show that students of the three universities and colleges have a common tendency to choose Process No. 4 (the rate of students choosing this process at Saigon University is 92.8 %, Cao Thang Technical College is 91.4 % and HCMC University of Technical Education is 89.5 %). The results showed that students have a strong need for guidance, mentoring, and assessment from instructors. Fear of moving entirely to online learning remains high. Through discussions with students, the authors found that students in basic science programs tend to prefer online learning; while students in engineering programs tend to prefer face-to-face learning. This again calls for flexible and adaptable blended learning policies.

e. In fact, students' choices regarding the time structure between online and face-to-face learning are quite diverse. In terms of the number of selections, all three schools lean towards option 4 (50 % online learning/50 % face-to-face learning). However, chi-square tests show that: students from Saigon University and Cao Thang Technical College predominantly choose option 4 in the expected relationship with option 2; the deviation between options is not significant in the choice of students from HCMC University of Technology and Education. Therefore, there is no universal model for all types of schools, and mechanisms are needed for universities to autonomously select models for each academic discipline.

5. Policy Recommendations

The conclusions drawn from the survey affirm that students demand benefit from the advantages of blended learning. With this legitimate demand, educational institutions in Vietnam have implemented blended learning quite extensively, especially since the COVID-19 pandemic. However, the actual implementation in universities is still fragmented and lacks a unified legal framework, so the effectiveness is not high. In such a context, policies promoting the development of blended learning have been issued (MOET, 2016; MOET, 2021; Prime Minister, 2022). To organize blended learning effectively and coherently, overcome fragmentation, and eliminate current barriers, the Ministry of Education and Training needs to develop a blended learning

development project to establish a framework for systematic guidance on blended learning activities. On that basis, it is recommended that higher management levels (Government, National Assembly) promptly issue laws and regulations related to the blended learning format to create a complete legal corridor for implementation units. Important and urgent policy components that need to be addressed include:

a. Issue a legal framework regulating the integration of online and traditional learning activities in the education system. The goal of the legal framework is to create a flexible learning and learning management environment, creating a legal framework for educational institutions to be autonomous and creative in choosing teaching processes and building time structures for online and face-to-face learning. All stages of managing blended learning activities, from planning, organizing, directing, to testing and evaluating, must be synchronized to create a solid foundation for universities and colleges to implement. This is also the basis to ensure that management at all macro levels is accurate and effective.

b. Policies for investing in technical infrastructure and the orientation of technology utilization are essential. The policy goal is to take advantage of information technology tools to enhance learning and teaching. That is to activate the creation of learning management software, mobile applications and build online learning platforms. Issue criteria and standards for technology investment for individuals and organizations in society to implement. Ensure priority of financial resources to support colleges and universities to equip modern technology, suitable for the requirements of the 4.0 Industrial Revolution. It is necessary to select and determine the order of priority so that in the coming years, Internet coverage will be achieved in all regions, cloud computing and artificial intelligence will be developed, etc., to be widely applied in universities. Universities and colleges must ensure priority of financial resources to invest in upgrading strong enough technical infrastructure.

c. Focus on developing digital educational content in all educational institutions. Universities and colleges proactively seek solutions to quickly use various online teaching technologies, quickly digitize and modernize teaching and learning processes. Creating digital teaching materials and learning resources that are easily accessible and interactive is essential for blended learning in the era of digital transformation. The government must provide clear and specific directives for investment at both the system and institutional levels.

d. Ensure open access and improve digital skills for both teachers and learners. Focus on training and developing skills in using digital tools for teachers and students so that they can carry out blended learning activities effectively, suitable to local conditions. The Ministry of Education and Training needs to issue a curriculum framework and content for training and fostering both teachers and learners in general throughout society. It is necessary to address the relationship between content, methods and teaching tools. Along with the development of an open learning materials system, it is necessary to ensure free access for everyone.

e. Make amendments and supplementations to improve outdated regulations on assessment and feedback in teaching. The purpose is to update and change regulations on assessment in traditional teaching and provide opportunities for frequent assessment and feedback through online tests, group discussions and project-based learning. The Ministry of Education and Training needs to issue complete regulations on testing and evaluation (for lecturers, learners and educational activities) to serve as a basis for unified management in the national education system. Assessment results should be used as a basis for adjusting course designs on online learning applications and related activities.

f. Enact policies to support personalized learning. This should focus on two aspects:

– The Ministry of Education and Training needs to issue full regulations on personalization in blended learning activities. These regulations create a legal basis for students to adjust their learning speed, choose content and learning methods suitable to their needs and goals. Organize training courses to develop the skills of all learners in society, help them to be autonomous and creative in learning interactions, create a foundation for continuous learning and lifelong learning of everyone. Issue standards and use assessment techniques to evaluate individual learning outcomes.

– Implementing social policies to support economically disadvantaged students in accessing information technology services and aiding with purchase minimum means for online learning such as computers, and Internet access

6. Study Limitations

With a sample size of 1138 students, selected through representative sampling to ensure scientific integrity, the results analyzed using the Kruskal-Wallis Test are deemed reliable. The collected data clearly illustrates students' preferences for blended learning. Such a sample is large enough and representative enough to make policy recommendations.

However, the survey sample was limited to three universities and colleges in HCMC. Although attempts were made to select typical variables of blended learning to survey and evaluate them in universities with different training majors, this study could not fully capture the diversity of the problem. Therefore, students' evaluations may not reflect every aspect of blended learning comprehensively.

Although the policy recommendations reflect the general practical needs of Vietnamese universities at the macro level, their effective application to a specific university requires detailed local analysis.

7. Conclusion

Implementing blended learning is one of the urgent requirements to meet the digital transformation requirements in training institutions. In Vietnam, universities and colleges have a later start than many countries in the world. The results of this study show that students appreciate the potential and advantages of this learning method. However, in the current context, challenges and difficulties are still significant. The information technology infrastructure of society is not yet synchronized. Learning support equipment for students is lacking and outdated, while the economic conditions of many families cannot meet them. The legal framework for organizing blended learning is insufficient, creating unnecessary legal obstacles. Students' motivation, self-discipline, and learning skills are among the internal barriers. To develop blended learning effectively, the government must establish comprehensive strategies and create a robust legal framework to empower educational institutions and enhance the mobilization of social resources for development. The policies recommended by this study are urgent and should be issued by the government soon.

8. Ethical Contributions

The authors declare that the manuscript is honest, truthful and transparent, not omitting any key aspects of the investigation. This study complies with all ethical writing standards. The respondents were anonymous, the study did not collect personal data from the participating students.

9. Conflict of Interest

The authors confirm that there are no conflicts of interest regarding this publication.

10. Author Contributions

The authors have significantly and directly contributed to the intellectual content of this work and have given their approval for its publication.

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