



Current Status and Trends of Blended Learning in Higher Education

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Abstract. Blended learning can be seen as an important opportunity to redesign and redevelop the higher education curriculum, due to its advantages such as greater flexibility, autonomy, participation, and more effective learning effects. This paper analyzes both current state and trends of blended learning in higher education. It highlights that learning management systems, social media and many other tools have been developed to implement blended learning in higher education institutions. The future of blended learning in higher education will be more personalized, diverse, innovative, student-centred, and high-quality.

Keywords: Blended learning · Higher education · State · Trends

1 Introduction

In recent years, blended learning has been driving the transformation of higher education, seeking a harmonious and balanced relationship between offline and online teaching, with a strong emphasis on the experience of both teachers and students in the process [1]. It aims to provide an effective and high-quality teaching model and is highly applied in higher education (HE) institutions. Ismail et al. find that blended learning shifts the focus of education from teaching to learning, stimulates students' enthusiasm for learning, makes them more actively engage in learning activities, establishes flexibility in learning, and expands students' knowledge and skills [2]. This article focuses on the current development of blended learning in higher education. Firstly, it describes the forms, characteristics and effects of blended learning. Then, based on a analysis of its current situation, the study discusses the future trends of blended learning in higher education in terms of individualization, learning methods and educational democracy.

2 Concept Defenitions

2.1 Blended Learning

With many universities now integrating school management and knowledge imparting with online systems, Internet has become an important teaching and learning media in higher education. As a result, blended learning can be understood as a system of

education that combines online technology moderation with face-to-face teaching [3]. Driscoll stated that there were many ways in which blended learning could be used, for example, by combining web-based technology with specific school tasks [4]. The variety of this approach satisfies different educational needs. Due to technological developments, higher education has achieved a simultaneous advancement of online and offline teaching, especially after the explosion of COVID-19, many universities moved to online teaching.

In addition, Allen and Seaman present more specific examples for blended learning: organization of online discussions, participation in online meetings, and the online teaching content as a specific form of achieving blended learning [5]. At the same time, they also delineate a clear percentage of online education for blended learning, which should be kept at 30–79% [5]. Apart from the range of explanations given by researchers when blended learning first emerged, Hrastinski provided a comprehensive definition of blended learning [6]. According to him, the conceptualization of blended learning can be explored in five main areas: inclusivity, quality, quantity, synchronization, and the digital classroom. The Inclusive Conceptualization is explained by the concept that all face-to-face courses and computer-integrated learning are blended learning. The Quality Conceptualization focuses on whether the integration of online learning into the blended learning process is conducive to improving the quality of teaching and learning, advocating the supplement of offline and online learning. The Quantity Conceptualization emphasizes the extent to which online education is incorporated into face-to-face education. The Synchronous Conceptualization is characterized by the use of web-based technology to support synchronous course interaction or discussion of issues. For example, all students studying online can participate in face-to-face classes through synchronous technologies such as video conferencing or online classroom software [7]. The Digital Classroom Conceptualization explores more about how and to what extent digital technology is used in the offline classroom.

There are many forms of implementing blended learning. Staker and Horn primarily summarize four typical models as follows [8]. The first is a rotating pattern in which students take turns between online learning and other learning options, including but not limited to face-to-face classes and individual tutorials. The second is a relatively free model where students have the flexibility to adjust their individual study time, face-to-face lecture time and group project time according to their own schedules, although the main content of the study is provided online. The third is a blended learning model where students can take multiple online courses at the same time to complement traditional lectures. The fourth is a combination of real and virtual classes where students need to divide their classes into offline classes and online synchronous classes.

2.2 DET

The definition of blended learning shows that digital educational technology (DET) is the essential technological basis for the implementation of blended learning. The use of digital technology has improved the storage, distribution, recording and management of data. Berger argues that these advances can help higher education institutions transform the data provided by technology platforms into effective content and facilitate the transformation of higher education institutions [9]. In addition to the technological enablers,

the high level of cooperation from HE institutions has led to the rapid integration of DET into the classroom [9]. Since the cooperation of HE institutions, digital technology has been able to transform existing teaching and learning content into better technological products [10].

Apart from digitalization, the definition of educational technology capabilities (ETC) should also be focused. ETC refers to the ability of teachers to use teaching medias in order to promote teaching effect [11]. In nowadays teaching, EFC is an essential ability that teacher should possess. For this reason, Castro also identifies ETC as an indicator of the prospects for technological progress and social change [12].

A wide range of digital technologies are used in higher education to make both teaching contents and teaching methods provide a better learning experience for learners. As technology advances and higher education continues to innovate, blended learning is no longer just a simple supplement learning website provided by DETs to help understand offline courses, but it also has influenced the redesign of many courses [13]. This is because DETs enhance the flexibility and diversity of blended learning, not only by systematically integrating pedagogical theory and practice, but also by creating a multi-threaded and personalized learning process [14]. This customized approach caters well for different types of students and subjects. As digital technology permeates the higher education classroom, more and more universities are taking advantage of online teaching opportunities and encouraging more teachers to use a variety of teaching technologies and improve their ETC. For example, Vaughan find that DETs allow case discussions, tests, seminars, and other work to be conducted online, replacing lectures and physical materials [13].

3 The State of Blended Learning

Learners involved in higher education today are already familiar with digital technology and its integration into the classroom is not a new endeavour. Many lecturers in higher education institutions are now actively using digital technology to stimulate student learning [15]. For example, students attend traditional face-to-face courses and then use computers as a mediating tool to deliver the learning content online. Furthermore, higher education institutions are constantly creating new media resources and learning software to enhance online learning communication between teachers and students and among students [16]. In 2014, Aguti et al. noted that 97% of higher education institutions in developed regions were creating one or more forms of blended learning, and 80% of higher education institutions were already adopted blended learning to support teaching and learning in a variety of subjects [17].

Blended learning is now a very popular and widespread method in higher education. It creates a warm and harmonious academic environment for students and teachers, greatly reduces students' fear of making mistakes, increasing students' courage to answering questions, and thus effectively reducing students anxiety [18]. It also contributes to the improvement of the teaching quality and even class management [19].

Both synchronous and asynchronous learning are currently being used in higher education as important teaching strategies to achieve blended learning. A number of online learning platforms, video conferencing software and virtual learning management systems are available, such as Moodle, Blackboard, Web CT, and WEB2.0, to meet the

needs of online learning and management of higher education [20]. These platforms are now one of the most important tools for facilitating collaborative teaching and learning between students and teachers [20]. For blended learning content, Aguti et al. point out that the online component of blended learning include electronic word books, video tutorials on specialist subjects, links to a wide range of reading materials, online interactive discussion forums, message boards, electronic references, standardized online exams and online self-tests [20]. The offline teaching component consists of face-to-face lectures with professors, presentations, laboratory experiments, practical projects and etc. [20]. The combination of these two is the most widely used method of blended learning today.

Furthermore, higher education institutions have not only developed a number of teaching management systems and online teaching tools, but have also expanded blended learning into the realm of social media [21]. For example, the video function on social networking software is used by many institutions to organize online video conferences or seminars. In the past, forums were mostly used to discuss current news, entertainment news or to share personal stories. However, with the development of blended learning, students and teachers are now shifting their discussions more from offline to online forums, and as a result, more and more academic forums have grown rapidly in recent years. Many teachers are also sharing their articles and academic research on blogs, and interested academics can participate in interactive discussions at the bottom, creating effective academic exchanges. Some chat software has also been developed with additional new features specifically created for schools to carry out learning management. It is thus clear that social media provides more and richer avenues for teachers in higher education to share teaching feedback and reflect on teaching [22].

4 Trends in Blended Learning

Digital technologies have brought challenges to higher education institutions, so that teaching practices and frameworks have shown new trends. Firstly, higher education is showing a trend towards individualization. Each student has his or her own strengths and weaknesses, especially at the tertiary level, and each student has different skill needs and knowledge level, so a uniform face-to-face curriculum can no longer meet the individual needs. And as everyone has different learning habits, a personalized learning approach can lead to more effective learning outcomes. The popularity of blended learning allows more higher education institutions to develop the personalized teaching strategies for different types of students in order to achieve the most desirable learning goals. Digitization, human-computer interaction, information technology and data give learners the technical support that they need, and each student can make use of these digital tools according to his or her own learning situation. For example, some students access classrooms and multimedia lessons through the use of laptops and headphones, and many courses have been developed specifically to support learners and educators with online and hard copy materials [6]. Selwyn and Facer mention that blended learning allows different students to choose the learning style that best suits them to ensure a specific pathway for each student, promoting a personalized approach to teaching and learning that will be increasingly evident in the future of higher education [23]. The principle

of individualization needs to be one of the foundations of higher education in the 21st century and this trend can promote the development of mass education [24].

The second trend is the accelerated innovation and diversification of education-related technologies. Open educational resources, commercial interactive content and MOOC platforms are already well-established blended learning approaches, but HE institutions are still looking for how to improve the function of blended learning platforms [12]. Despite the accelerated development of many teaching and learning technologies, the adaptability and quality are still uneven. As a result, higher education institutions are no longer confined to a few existing online teaching platforms, but are actively expanding their partnerships with other technology companies and digital information platforms. At the same time, blended learning is attracting the attention of commercial and open digital technology producers [24]. A growing number of technology companies are also targeting universities and colleges with huge growth potential, developing a wide range of technological devices and platforms to meet the diverse needs of universities, thereby compensating for the functions that cannot be provided by existing resources. In addition, the right equipment is fundamental to blended learning. Students need to have a full range of personal devices such as laptops, smartphones and tablets. There is an accelerating trend towards innovation in electronic devices to meet the needs of students to listen to lectures, take notes and take exams on them.

Thirdly, the student-centred learning has also shown a rapid expansion, stimulated by blended learning. Teacher's role is also changing from the leading role to the supporting role. Castro finds that when student-centered teaching methods are combined with digital educational technology tools, learning effects will be improved [12]. Some important information can also be gathered directly online. Online assessment tools can pinpoint each student's difficulties, progress and performance to the teacher. Students' motivations, facilitators and barriers to participation can all be presented [25]. This instant, automated and personalized assessment allows teachers to tailor their tutorials to the exact characteristics and problems of their students, creating a student-centred learning model [25]. Moreover, this online assessment platform can also analyze learning behaviors and study habits, helping teachers to know each student's performance across multiple learning management systems [26]. This allows teachers to tailor learning trajectories and learning activities for different students in individual or group projects and classifies digital education technology as one of the keys to solve problems in teaching and learning process.

Finally, there is a trend towards more democratic and better-quality higher education. Blended learning has made learning less restricted by traditional geographical conditions and physical space, and more citizens are enjoying the right to education [23]. And as new models of education are explored, more students, teachers and administrators are involved in school decision-making [6]. The student-centred approach to education is becoming more common and teachers are taking on more of a leading role, thus promoting a more equal relationship between teachers and students [23]. These are the extensions and manifestations of democracy in education [23]. Many educational technologies are currently underutilized. For example, most blended learning models simply move the offline teaching to online, but not really explore the suitable online teaching method [27]. Gradually, some higher education institutions are beginning to

recognize the problem and making some attempts to change this situation. Castro found that some higher education institutions have combined immersive technologies such as virtual reality with the classroom to create new learning spaces for students like stereoscopic virtual space with the 3D function [12]. For example, students can visit museums and art galleries through virtual reality to gain a unique learning experience. In addition, the interactive boards and abundant learning resources in learning management systems can improve students' social ability and help learners to directly apply their learning abilities, professional skills and computer knowledge to their subsequent work [28]. These constantly optimized blended learning models facilitate the delivery of better content and also develop students' awareness of critical thinking. As such, the use of these platforms in teaching practice will increase in proportion. These online teaching tools will also continue to expand their capabilities, playing a more important role in higher education and evolving towards a new generation of learning management systems. These educational technologies could in the future create a scale of development from regional platforms to worldwide platforms, which would allow higher education to move towards a more democratic and high-quality trend [12].

5 Implications

Although the use of blended learning has become increasingly widespread, the extent of practice and quality of teaching remains uneven. It is still a challenge for HE institutions to design mature, high-quality blended learning programmes. Thus, a comprehensive online system, rational courses and resources arrangements, and complete policies on blended learning to ensure its successful practice is essential for HE institutions [29].

Firstly, in terms of the curriculum, HE institutions must think through and plan their blended learning programmes in detail before putting them into practice, as a haphazard course management will only reduce the effectiveness of learning. It is also important for HE institutions to flexibly adjust the ratio between online and offline learning to maximize the benefits of the combination. Furthermore, teachers and students, as key participants in blended learning, are central to the success of high-quality blended learning and that they should be provided with technology training and support [13]. Teachers also need to learn how to redesign their courses to ensure blended learning effect [30]. At the same time, HE institutions should prepare students and teaching staff with sufficient equipment, technology and teaching resources to meet their various needs while in the transition to a new teaching mode.

Secondly, the blended learning strategy is based on technology, equipment, and network support, which inevitably leads institutions to work with commercial companies. Therefore, HE institutions need to develop an operational plan that incorporates the school's needs, costs, available resources and investment objectives, in order to obtain the best value from each investment.

6 Conclusion

Poon argues that blended learning is likely to be the dominant pedagogy of the future and that it is now one of the key educational trends of the 21st century with great potential [31].

This paper analyzes the current state and trends of blended learning in higher education and provides insights for innovative teaching and management approaches for a wider range of higher education institutions. Under the influence of blended learning, higher education has been injected with new blood and new trends have emerged. Therefore, it is vital for HE institutions to further think about how to implement and deploy blended learning well in the future.

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