

Research article

Concept and Implemented Blended Learning for Higher Education

Bambang Ismaya¹, Ardian Arifin², Petrus Jacob Pattiasina³, Dina Destari⁴, Erna Adita Kusumawati⁵

¹Universitas Singaperbangsa Karawang, West Java Indonesia.

²IKIP PGRI Pontianak, West Borneo Indonesia

³Pendidikan Bahasa dan Sastra Indonesia, FKIP Pattimura, Ambon, Indonesia

⁴English Education Department (TBI), Faculty of Education and Teacher Training of UINSI SAMARINDA (Universitas Islam Negeri Sultan Aji Muhammad Idris Samarinda)

⁵Prodi Sarjana Terapan Manajemen Informasi Kesehatan, STIKES Mitra Husada Karanganyar

ORCID

Bambang Ismaya: <https://orcid.org/0000-0003-4513-90171>

Abstract.

Learning is a complex system that requires multiple perspectives and levels of study to understand players' context, dynamics, and interactions, especially those related to technological innovation. This paper aims to identify some of the most promising trends in the adoption of blended learning in higher education and the capabilities that technology provides (e.g., ratification) and the contexts in which these capabilities are used. This literature review selected and analyzed 45 peer-reviewed journal articles. The findings highlight some of the capabilities of digital education technology. In particular, digital tools or platforms that support human-machine interaction can help enhance automated processes to deliver blended learning. Digital technologies such as video capsules and intelligent guidance systems can help improve teaching and learning in this context. To start, by increasing student access and facilitating independent online learning activities. Second, by providing a personalized learning path for each student, increasing opportunities for activities and feedback outside the classroom. Educational technology capabilities contribute to the identification of optimal approaches to align learning objectives in technology-based implementation. Additional research will be needed to validate these findings empirically.

Keywords: Concep Learning, Implemented learning; Blended Learning; Higher Education

1. Introduction

Education is an effort to build and develop the human personality both outwardly and inwardly. Some experts interpret education as a change in the attitudes and behavior of a person or group of people in maturation through teaching and practice. With education, we can be more mature because it has a very positive impact on us. Also, it can eradicate illiteracy and will give skills, mental abilities and so on. As stated in Law No.20 of 2003, Learning is a major and planned effort to create an atmosphere of practice and a way

Corresponding Author: Bambang Ismaya; email: bambang.ismaya@fkip.unsika.ac.id

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of learning so that teaching participants actively develop their potential to have the spiritual power of faith, self-regulation, character, intellect, good manners, and skills needed from themselves, society, and the country (1).

Today, the world's demand for major learning is growing despite frequent criticism of the high fees, accessibility barriers, dropout rates, and quality of tutoring (2). Not only that, learning bodies often experience challenges related to the relevance of the totality of their programs to the prolonged learning of alumni or post-expert professions and factual learning credentials in large learning systems (3). Some of these challenges include: increasing multicultural integration, reducing dropout rates, providing an easy transition from learning programs to early professions, and practicing flexible and relevant ways of lifelong learning (4), as cited in (5), show that institutions need innovative transformation structures to face these challenges. However, must first investigate these challenges through a broader, multidisciplinary, multi-level research that addresses social, pedagogical, economic, demographic, and financial aspects of Education (6). In this regard, approaches such as blended learning can provide alternative opportunities for higher education institutions to face these challenges and respond to external pressures to spread technological innovation effectively in the classroom.

2. Methodology

The authors compiled the study using literature-based methods for idea creation (Branch and Rocchi 2015). The first stage is the author's deliberate and repetitive searches to find the most relevant social, organizational, technical, and educational literature papers. References to these search results are limited to peer-reviewed scientific publications published in English and articles on the application of blended learning at universities. Selecting two technical platforms selected two technology platforms for managing research data, Mendeley for literature reference and NVivo for handling data from qualitative analysis. The author uses qualitative content methods to evaluate and synthesize the data collected for each point of view. Find topics related to future trends and educational technology capabilities. Discover some early topics related to future trends and educational technology capabilities through this approach. The author can improve the skills and context of the use described in the literature with further rounds. The authors divided their research into two parts: educational technology trends and educational technology capabilities. The list of capabilities is improved, and the context of use is determined during the coding and logging phase. These results allow the

author to offer a more specific definition of technical competence and serve as the basis for further discussion and conclusion.

3. Result and Discussion

Blended learning is characterized by the successful integration of several delivery modalities, instructional forms, and learning styles in interactive application areas. Blended Learning Tutoring combines activities and types of online nursery training and uses the best sources of energy to improve student learning outcomes and uncover critical institutional issues (7). Blended learning is the organic blending of well-chosen and compatible face-to-face and online methods and technology (8). Blended learning, in general, combines the best features of online educational content delivery with the best features of classroom interaction and live instruction in order to personalize learning, allow thoughtful reflection, and differentiate instruction from student to student across a diverse group of learners. Watson (Watson) Mixed learning has been a continuous buzzword in the twenty-first century, and its definition has grown so wide that it's impossible to discover a learning system that isn't covered (9). The term Blended Learning in one dimension is widely defined as "Convergence of online and face-to-face Education" in the research by Watson in order to meet the objective of the study and attempt to discover as many elements as feasible. Simultaneously, aspects of technology and media usage must be considered, as shown in the multimodal conceptual model in Figure 1 below. Picciano proposes and presents this conceptual paradigm in a published paper (10).

Picciano's conceptual model was used to the examination of results and debates in chosen publications in this research. One of the most intriguing elements of Picciano's conceptual model is the distinction between asynchronous and synchronous teaching and learning systems in the bottom right corner. Another Picciano idea is to see whether high-level media infusions can satisfy the many demands and learning styles of today's pupils. Even though the notion of various learning styles has been questioned in later studies, it makes sense to pay attention to students' varied learning methods and their diverse range of options for navigating a particular course's material. It's also crucial to include the model's third quadrant in face-to-face meetings with media-infused teaching and learning activities.

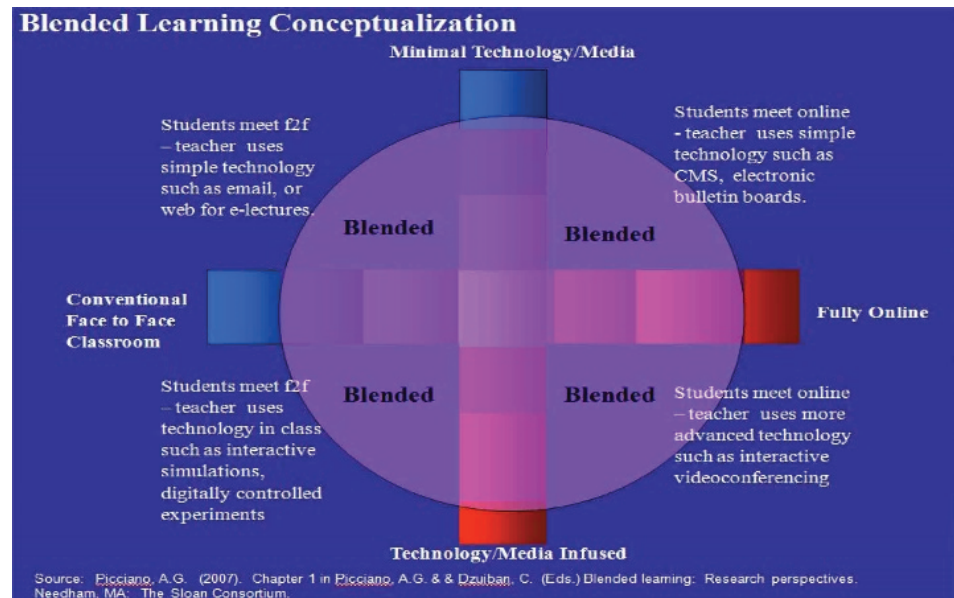


Figure 1: Broad Conceptualization of Blended Learning.

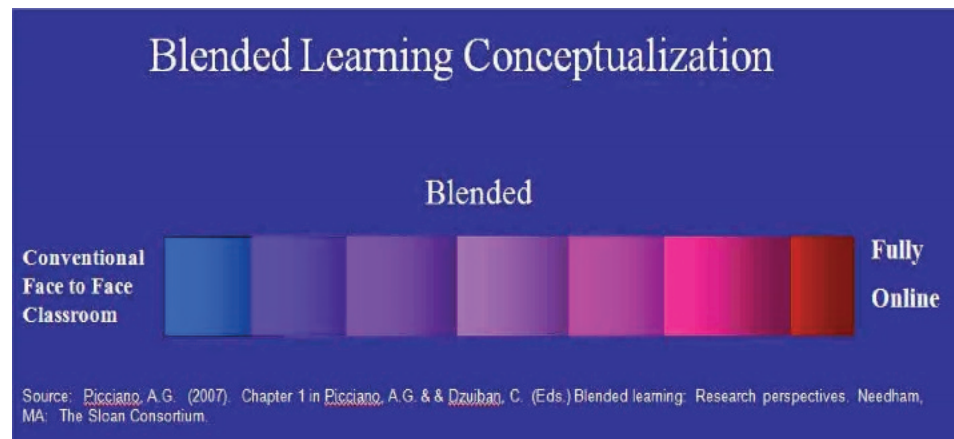


Figure 2: Narrow Conceptualization of Blended Learning.

3.1. Educational Technology Capabilities

The author evaluates the technology from the point of view shown in the previous section, based on the selected literature. This study looks at how standard technological features (such as data collection) produce specific capabilities in educational settings. This section introduces these educational technology capabilities and a comprehensive description of how they apply mixed learning in higher education.

3.2. Datafication

Datafication uses automated information gathering, analysis, and reporting tools, technologies, and methods to improve the concept and implementation of mentoring activities. The findings show that comparing pedagogical procedures (for example, student-focused categories or complex categories) with students' current insights about the source of learning energy improve teaching and learning activities. This data may be collected both inside and outside the classroom, as well as before online classes. When this procedure (for example, an online assessment tool) is used, it provides teachers with information about their students' gains and knowledge issues. This data can provide automatic and real-time customized evaluations and comments outside the classroom and group feedback within the class (11). When using online tutoring or special evaluation technologies such as audience response systems, information gathering methods can also be tried during the category stage (ARS). When using ARS, teachers may want to assess the level of category knowledge and increase student participation (12).

The literature examines the spread of mixed learning mainly from two angles. First, identify the impacts, barriers, problems, drivers, and opportunities that affect the entire business or system from a broad perspective. Second, examine how a particular technology tool or platform affects teaching and learning activities from a more specific perspective. Different deployment levels, such as classrooms, corporate implementations, or national efforts determined by government policy, are represented by different analytical units. Each application consists of a variety of teaching practice procedures, instructor skill levels, pedagogical frameworks, technical instruments, and body and customary values. These combine to create a very environmental and different learning area. The author gained an early understanding of the capabilities of general educational technologies available in many digital technologies due to observed patterns. The idea of educational technology capacity studied in this study seems useful as a transverse analysis tool to understand the multi-level transformation process. To uncover patterns regarding unique features in digital education technology that can lead to significant changes in the education system, the study first examined recognized technological trends. In the second phase, the study identified various scenarios for educational technology related to these skills in higher education institutions.

There is a lot of material available about the effective institutional use of digital technologies such as LMS. According to (13), LMS is used by 99 per cent of higher education institutions in the United States, with 85 per cent of instructors using it at least once in its essential functions and 47 per cent using it regularly in their courses.

On the one hand, depending on the instructor's skills and requirements, Moodle (for example) can use Moodle (for example) for a variety of reasons. The most basic level provides access to repositories of downloadable content. A more participatory communication and knowledge sharing platform can be attributed to the intermediate level. Finally, we can use the customizable features of this platform at a higher level. However, compared to more adaptable systems like Knewton, the adjustment as an educational goal provided by human-machine interaction capabilities in the LMS is still lower. A tool or platform, on the other hand, may have a low level of technological advancement. For example, Perii et al. (2018) found LMS systems with customizable capabilities in the primary development stage or minimal functionality (14)

Different technologies may offer the same capacity; however, various technical instruments or platforms may have different levels of technological advancement. The LMS currently offers a basic level of adaptive capability that is transformed into a learning path tailored for each student in terms of human-machine interaction. Other systems (such as Knewton) rely on advanced artificial intelligence-based technologies to improve the scalability and quality of computer-based personal learning processes. While early commercial products lacked the technological capabilities to create valuable and scalable systems (15), recent developments in digital educational content platforms and adaptive learning systems could create an integrated, individualized, and scalable learning environment.

There are significant variations in the content of courses and curricula in universities and colleges for comparable academic programs. These differences may preclude more measurable solutions for the entire higher education system. Nonetheless, these differences offer unique institutional features and possible innovations, among others. Institutions, for example, have different approaches to delivering highly organized and consistent material to first-year students versus students in the later stages of academic programs. As suggested by (16), all first-year courses can ultimately benefit from digital technology, allowing the conversion of these courses into online delivery mode only. This type of technology with human-to-machine interface capabilities can make mixed learning delivery procedures more automated. Digital technologies such as video capsules and intelligent guidance systems can help improve teaching and learning activities in this field. To get started, by improving student access and enabling self-paced online learning activities. Second, giving each student a unique learning route, activities outside the classroom (17) and improved feedback (11)

On the other hand, this technology may not be suitable for advanced courses where the information is less solid and standardized. Digital technology with interaction capabilities that enable human-to-human technologies, such as intelligent recommendation systems, can enhance interaction among students in a collaborative learning environment for this type of course. This method is recommended in this context as a way to minimize teacher post-classroom help sessions. The system encourages peer cooperation for technical questions and answers (Li and Chen 2009).

Educational technology skills are described in this study as a collection of similar abilities found in many digital technologies that enable various learning objectives. These skills show different levels of maturity, which are determined by two factors. The first element concerns the variation of the level of technical tool development. In contrast, the second concerns the competence of teachers in utilizing certain technologies and pedagogy that is suitable to maximize the design of teaching and learning activities. A higher level of transformation in pedagogical practice is found when technical tools or platforms are more mature or when various abilities are effectively adapted to learning objectives during the application, according to this exploratory study. Finally, these results can be explained by more significant knowledge of how technology and pedagogy are aligned and the strengthening impact that occurs when multiple capabilities interact and provide a smoother implementation. As a result, education is getting better.

4. Conclusions

This study aims to highlight some of the most promising trends in educational technology and the capabilities offered by the technology (for example, datafication) and the settings in which these capabilities are used in blended learning implementations in higher education. To respond to the research questions presented, this research looked at the literature on technology implementations in higher education, focusing on blended learning delivery. This multi-perspective study identified several current trends, allowing the author to narrow down a list of capabilities that new technologies might provide in educational settings. Educational technology capabilities, defined as a set of standard abilities present in various digital technologies that enable various learning purposes, may provide a unique mechanism for evaluating and comparing technologies and their transformational potential in course-level or institutional implementations—discovered patterns regarding possible connections among these skills throughout the process of determining how teachers utilize them. However, since this was an

exploratory study, it addressed not all relevant elements, and additional research on these issues will be needed.

Due to the fast growth of technology in response to societal needs, many problems have emerged, and the present digital revolution has put additional stress on higher education institutions. MOOCs and other digital technologies have brought to light the debates and difficulties in educational institutions throughout the globe. Various new technologies have piqued the attention of institutions and businesses that provide instructional material and alternative technical solutions, enabling the fast development of network partnerships between these parties. However, as many in the academic community anticipate, digital technologies have yet to solve many critical socio-economic issues linked to education (e.g., high prices, high accessibility hurdles, high dropout rates, and poor course quality). There is still a need for structural and technical solutions that will result in a democratic, decentralized, and customized education system that engages most students.

To obtain a deeper understanding of the process and its transformative potential, different methods for assessing and evaluating technology-based implementations are needed in this situation. This study defined educational Education and Information Technology capacities as a cross-cutting notion unaffected by technological instruments or analytical viewpoints. This exploratory study offered a conceptual model outlining the discovered connections between technologies, technical characteristics, and educational technology capabilities, as well as a definition for a technological capacity. This framework aims to aid in the study and assessment of blended learning implementations in higher education by presenting educational technology capabilities as a new and cross-cutting notion. In a multilevel viewpoint study, this idea may aid academics and practitioners in better understanding the nature of the connection between technology, pedagogy, organization, and society in general.

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