Hybrid E-Learning Model and Applications

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Abstract
This paper presents a comprehensive literature review related to hybrid e-learning model and application for higher education students. Blended learning, another name for hybrid learning, has become a well-liked teaching strategy that mixes traditional in-person instruction with online learning opportunities. This essay investigates the idea of hybrid learning and how it might be used in different kinds of learning environments. The advantages of hybrid learning are covered, including improved accessibility, flexibility, and student-centered learning experiences. The study also looks at important elements of successful hybrid learning deployments, like smart course design, efficient use of technology, and continuous support for instructors and students. It also draws attention to difficulties and factors related to hybrid learning, like concerns about digital equity and the requirement for professional development and training. This study offers insights into the potential of hybrid learning to alter education and increase student outcomes in the digital age through an extensive review of the research and case studies.
Keywords: Hybrid, Learning, Applications,

Introduction
The educational landscape has changed significantly. Due to this shift, there is a great need for university graduates with a variety of learning styles, knowledge bases, and standards. Information and communication technology (ICT) is therefore crucial to the resolution of the majority of these issues. Palloff & Pratt (2000) state that positive comments on the use of ICT in education have been received from a number of higher education institutions. E-learning programmes in particular have significantly altered both educational institutions and students. The student-centered part of the learning process provides insight into this issue. According to De Wever (2009), structured discussions can give students enough time and space to think freely and participate fully in the conversation. Problem-oriented learning combined with student-centered e-learning can foster a variety of abilities, including integration, cooperation, and teamwork (Sheeba, 2019). Additionally, by using analysis, synthesis, and reflection to solve original challenges, kids can also build critical thinking skills. Focus of the most recent developments in education is the use of Web technology, such as Web 3.0, in student-centered learning.

The revolution in e-learning or e-training that works ICT is crucial in helping students develop 21st century skills and information literacy. The education sector needs to innovate in the twenty-first century, particularly when it comes to the use of technology in the teaching and learning process. Only with the collaboration of numerous parties—especially the administration, professors, and students—can this idea be put into practice. The goal here is to encourage active learning. Teachers must adapt their teaching strategies to fit the requirements and learning preferences of a diverse student body in order to foster active learning. There are several ways to accomplish this shift, and using technology is one of them.

Literature Review
E Hybrid Leaning
Hybrid e-learning is defined in a number of ways, with one definition stating that it is a blend of online and in-person learning. Online forums and in-person meetings are typically employed as the delivery methods for hybrid e-learning. Furthermore, according to Muller & Mildenberger (2021), between 30 and 79 percent of the content is supplied online, with the remaining portion being delivered through in-person instruction or non-web-based techniques like paper and textbooks. A digital technology-based approach to teaching and learning is known as hybrid e-learning (Fransisca & Saputra, 2023). Communication between students and other students, students and the course material, and students and instructors is a part of hybrid e-learning (Kasraie & Kasraie 2010). Furthermore, according to Ayub et al. (2022), e-Hybrid Learning is a pedagogical strategy that integrates socialisation and learning opportunities with the use of technology to encourage students to actively learn. Researchers define hybrid e-learning, which is used in this study, as an operational definition of blended learning that combines face-to-face, computer-mediated communication with independent learning channels that use a variety of educational technologies, including both new and old ones like printed materials, CD-ROMs, electronic books, and web 2.0 technology.

Content
Content is defined as something that is contained in something else or that is contained by something else. Content is what is present in something. Another definition of content is things, concepts, or narratives that are learned through writing or other media (Macmillan Dictionaries, 2012). According to Beerli (2003), three criteria make up high-quality material or information: appraisal, contextualization, and comprehension. This kind of evaluation data is accurate, dependable, clear, succinct, and useful. According to MacDonald (2001), high-quality material is thorough, distinct, industry-focused, and has undergone a research process.
Shieh & Hsieh (2021) states that facts, procedures, methods, concepts, and principles make up the content of e-learning. Content that is created from a needs analysis and applied early on to satisfy students' needs is considered high-quality content. As a result, producing high-quality content is crucial to implementing hybrid P&P successfully. Therefore, in the context of this study, "content" refers to the materials that the instructor provides in order to satisfy the needs and preferences of the students while putting teaching and learning strategies that integrate in-person and online instruction into practice.

Delivery
The goal of a presentation is to communicate a message. Furthermore, delivery can also refer to a speaker's manner or style. On the other hand, the Macmillan Dictionary (2012) defines

delivery as the act of delivering information via a computer. Restricting the way material is presented by employing a single format can make it harder for pupils to learn a subject. Various learning styles and patterns are supported by the use of diverse media and communication methods for material delivery. There are eight popular e-learning delivery modalities, including the usage of email, bulletin boards, static networks, interactive websites, and video conferences, or a mix of the two or more previously described tools. Zeithaml (2002) added that in order to guarantee that teaching and learning can be completed flawlessly, the Web must be used in the delivery process. Thus, the study's focus is on the following delivery methods: (i) in-person interactions; (ii) printed materials; and (iii) computer-mediated communication via websites including blogs, Facebook, Skype, and Web 2.0 learning platforms.

Interactive

The term "interactive" refers to a number of concepts, such as cooperation and communication between people or technology, enabling the sharing of information between people and devices like computers, and referring to the process of inputting commands using a keyboard or other input device. Interactive means "relating to each other,". When this definition is applied to a computer, it denotes an ongoing two-way information flow between the computer and its users, or between users and users through the computer, and it also involves system involvement between students and lecturers. Furthermore, an interactive process is defined as one in which participants converse and provide feedback to one another. According to Kamparia & Pandey (2017), interactive components ought to be present on e-learning sites. This is due to the fact that this component can encourage passive students to participate more fully in the teaching and learning process. Through this process, they can improve their abilities, impart knowledge, learn new things, and solidify what they already know. In higher education institutions, interactive learning has become a common practice in teaching and learning. It involves the use of computers and other holdable and visible devices. Therefore, in the context of hybrid teaching and learning, interactive refers to a method of obtaining information through the use of multimedia-based activities including audio, video, and animation, as well as interactivity through Web apps.

Outcome

An outcome is a situation's course or a result's occurrence. Furthermore, according to the Macmillan Dictionary (2012), results can also include findings, final results, or potential outcomes of a procedure. Nonetheless, there is a strong correlation between student achievement and the outcomes of the learning component (Adam, 2004). According to MacDonald (2001), the outcomes entail (i) minimal expenses for both companies and students, (ii) personal advantages for each student, and (iii) the attainment of learning objectives. Results are more concerned with accomplishing predetermined learning outcomes; MacDonald's (2001) initial two criteria for results are still in place. This is so that less time and money are wasted because, with the hybrid implementation of P&P, pupils only need to meet with the instructor when absolutely necessary. Students benefit greatly from this learning, particularly those who have families and jobs. Results are derived from a combination of vocal learning, graphical models, and prior knowledge, claims Mayer (2003).

The goal of this study is to develop learning outcomes that satisfy employers' needs by offering students programmes that help them develop problem-solving abilities in a distinctive setting. This enables students to participate in a course's problem-based project environment and acquire the skills necessary for their future lives in a world that is becoming more evolved. Thus, it is intended that the knowledge acquired from this course will offer fresh insights that are applicable to both the workplace and everyday life.

Structure

Structure as the way that components or complicated elements are arranged and related to one another. Furthermore, structure is described as the act of digesting individual components of something or organising it cohesively. According to Diggele et al. (2020), structure is a kind of curriculum or set of rules that are applied while choosing the courses that are presented. Maintaining a good structure involves concentrating on a few key areas: (i) comprehending the needs of students and pinpointing particular requirements regarding media, content, and technology applications integrated in the Hybrid e-Learning model; (ii) thinking about what inspires students by structuring to present pertinent content to spark student enthusiasm; and (iii) fostering a collaborative environment that highlights the importance of collaborative learning based on knowledge gained through social negotiation. MacDonald (2001) asserts that structure is a crucial component that guarantees the calibre of the offered services, content, and delivery. By keeping in mind the needs of the pupils and what inspires them, great structure may be established. Framework serves as a manual for carrying out the facilitator's instructions. In the Demand Driven Learning Model (DDLM), a good framework is upheld for this study in a manner similar to Web-based learning: (i) assessing student needs, (ii) taking into account what drives students, and (iii) structuring collaborative learning.

E Hybrid Learning Model

Four hybrid e-learning models that have been created by earlier academics are covered in this section. The underlying constructs, respondents' range, and development factors distinguish these models from one another. As a result, these models serve as a guide for creating a hybrid e-learning model targeted at higher education student responders.

Demand Driven Learning Model (DDLM)

Canada is where the Demand Driven Learning Model (DDLM) was created in 2001. MacDonald and his associates, who were professionals in both the public and private sectors as well as academia, created and developed this model (MacDonald 2001). This model was created to motivate academics to actively participate in both the creation process and the application of technology in the classroom (MacDonald 2001). Previous research on distant learning served as the basis for this model. These research provide insights into the elements that boost Web-based learning efficacy, leading to the development of a high-quality conceptual framework featuring these attributes. This concept was created especially for higher education institutions' working adult students, employers, and teachers.

Experts from the public and private sectors work closely with a university research group to ensure that this model is applicable and feasible for the range of consumers that have been identified (MacDonald 2001). This is meant to guarantee that the objectives are attainable and satisfy the requirements and preferences of the range of users that have been identified. The results, content, delivery, services, and structure are the five main constructs upon which the DDLM model is built (see Figure 1).
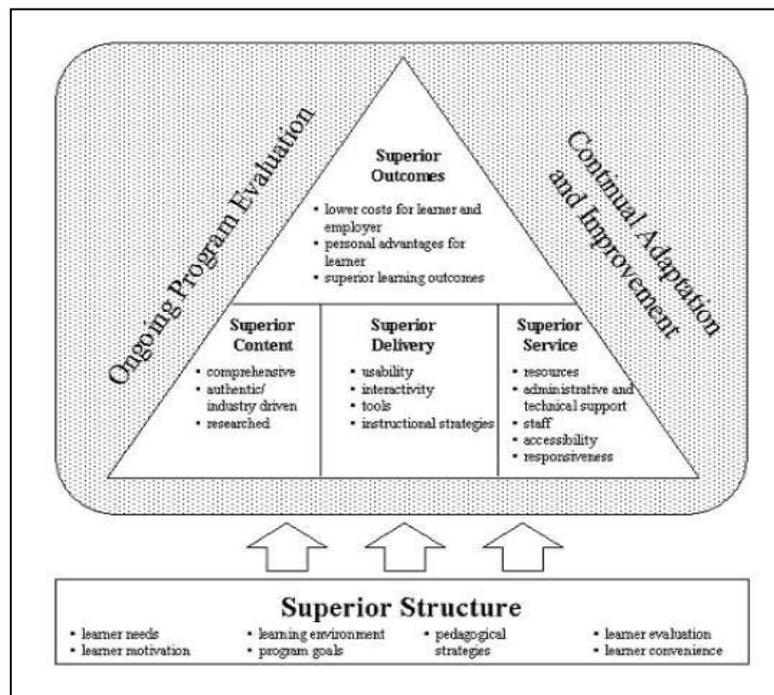

Figure 1 Demand Driven Learning Model (DDLM) conceptual framework
Source: MacDonald 2001

People-Process-Product Continuum (Model P3)
The People-Process-Product Continuum, or Model P3, was created by Khan (2004) with the intention of painting a complete picture of e-learning. Additionally, he created an e-learning conceptual framework that situates concerns related to the design of teaching and learning systems in a larger context, taking into account the elements that make up the e-learning environment. Model P3 was developed using eight main constructs, as shown in Figure 2. Education, technology, interface design, administration, support resources, ethics, and institutions are the eight constructs.
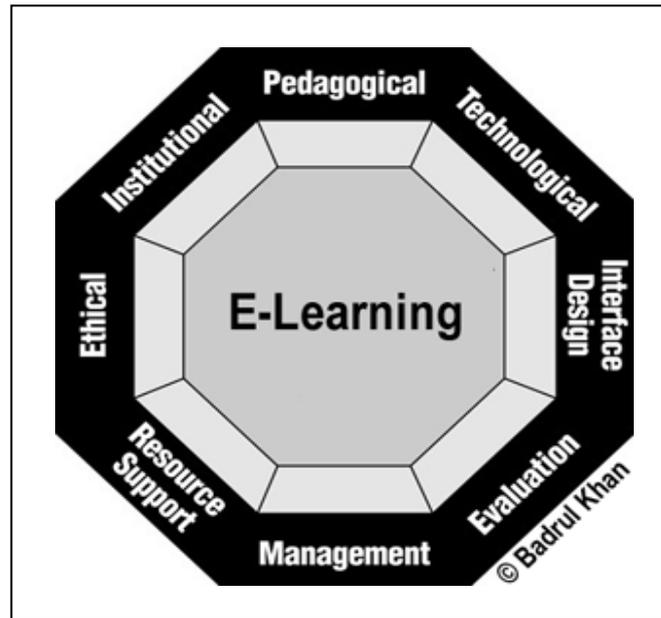
Figure 2 People-Process-Product Continuum (Model P3) Conceptual Framework
Source: Khan 2004

Anderson Model
The interactive element that exists between students, teachers, and course material served as the foundation for the development of Anderson's model (Anderson, 2004). The model explains the different forms of interactions and communication that result in the different kinds of P&P that may be found online. According to Anderson (2004), the establishment of learning centres and community centres for learning settings is made possible by the special qualities of the Web. It is the responsibility of designers and educators to choose and modify P&P exercises that optimise the use of the Internet. Students, knowledge, evaluation, and community centre are among the features of P&P, according to Anderson and Elloumi (2004), based on Figure 3.
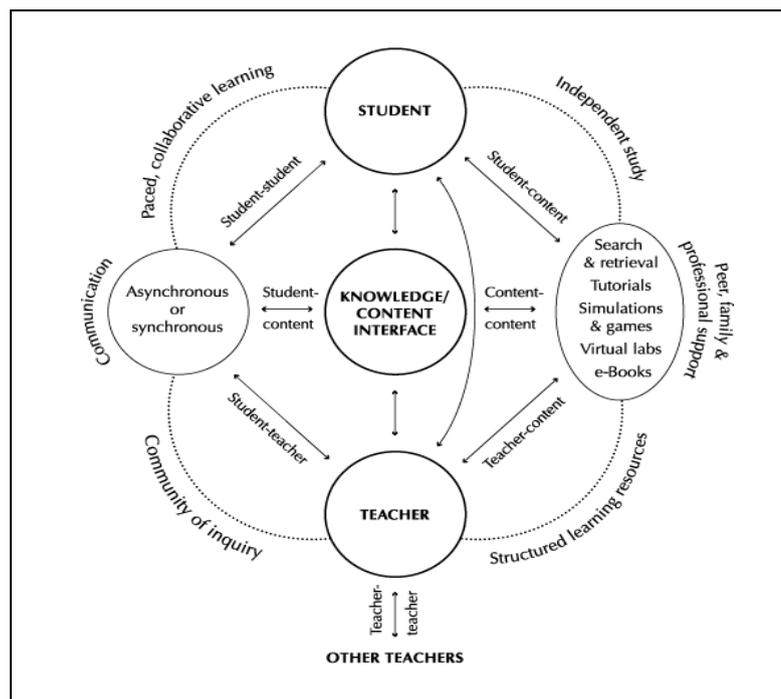
Figure 3 Anderson Model
Source: Anderson and Elloumi 2004

Technological Pedagogical Content Knowledge Model (TPACK)
Mishra and Koehler created the Technological Pedagogical Content Knowledge Model (TPACK) in 2006. The goal of this paradigm is to encourage educators to reassess their own knowledge bases and use technology into the teaching and learning process. The inspiration for this strategy came from observations of how instructors were utilising technology to enhance the classroom experience. This finding suggests that there is a growing trend in the usage of technology. Because of this, Mishra and Koehler have proposed that the Pedagogical Content Knowledge (PCK) model be expanded to include a technology knowledge construct. As a result of the inclusion, TPACK, a new model, was created. The significance of the knowledge that educators must possess in order to successfully integrate technology into the P&P process is explained by the TPACK model framework.

According to the AACTE Committee on Innovation and Technology (2008), the conceptual framework also emphasises the planning and assessment of teacher knowledge, which focuses on efficient learning processes across a range of subject areas. The Technology Information, Content Information, Education Information, Technology Content Information, Education Content Information, Technology Education Information, and Technology Education Content Information are the seven primary constructs that make up the TPACK model, as shown in Figure 4.
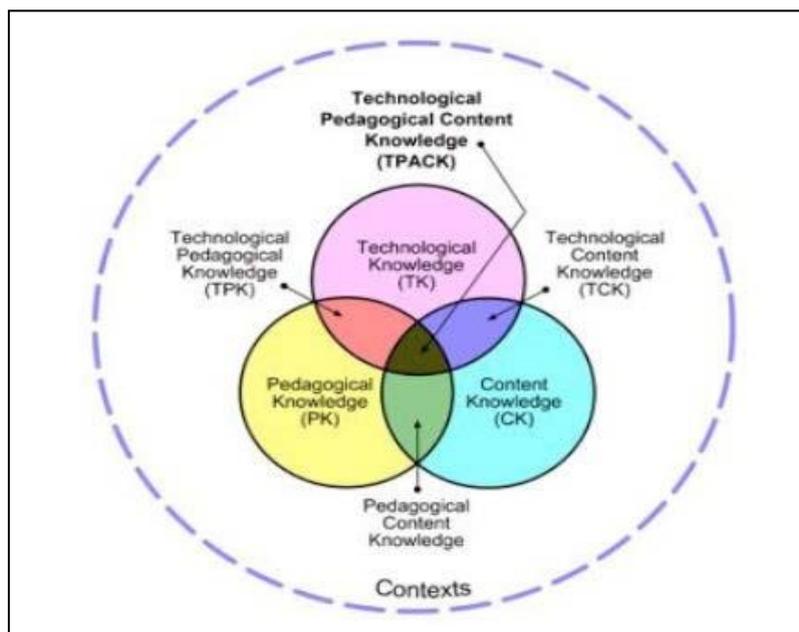
Figure 4 Technological Pedagogical Content Knowledge Model (TPACK)
Source: Mishra and Koehler 2006

Conclusion
Conclusively, the hybrid e-learning model offers a potential avenue for education by merging the advantages of conventional classroom teaching with the adaptability and convenience of virtual learning. This methodology accommodates a range of learning styles and preferences by combining in-person interactions with digital resources to promote student involvement and cooperation. Careful planning and consideration of many aspects, such as technology infrastructure, instructional design, and teacher preparation, are necessary when implementing a hybrid e-learning approach. In addition, it is imperative to have constant evaluation and feedback systems in place to guarantee the efficacy and continual enhancement of the blended learning process. Although the hybrid e-learning paradigm has numerous benefits, it also has drawbacks, including the need to address student gaps in digital literacy and ensure equitable access to technology. Additionally, careful curriculum design and pedagogical techniques are needed to establish a balance between online and offline components. All things considered, there is a lot of potential for improving the standard and accessibility of education in the digital age using the hybrid e-learning paradigm. The integration of traditional and online learning modalities can yield dynamic and captivating learning environments that equip students with the necessary skills to succeed in the twenty-first century.

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