In-Person and Hybrid Learning in the Training of Higher Education Professionals: A Focus on ICTs

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Abstract

In-person and blended learning in higher education are receiving increasing attention due to the rapid advancements in information and communication technologies (ICT). This study examines the effectiveness of these learning approaches, specifically focusing on the role of ICT. There is a growing interest in in-person and blended learning in higher education due to the rapid advancements in information and communication technologies (ICT). This study aims to examine the effectiveness and implications of these learning approaches, particularly with regard to the crucial role that ICT plays in their implementation. This is done through a review of existing literature, addressing both emerging trends and current challenges in the area of hybrid and in-person learning. The results reveal a variety of benefits associated with blended learning, from increased flexibility for students to better opportunities for interaction and collaboration for the effective integration of technological tools. However, challenges were also identified, such as the need for teacher training and the digital divide. These findings have significant implications for practice and research in higher education, particularly in an increasingly digitalized world.

Keywords: *Hybrid learning, Information and Communication Technologies (ICT), Higher Education, Flexibility, Integration*

INTRODUCTION

Higher education is in the midst of an unprecedented transformation due to rapid advances in information and communication technologies (ICT). These technologies have not only changed the way we interact in our daily lives, but are also fundamentally reshaping the educational and learning paradigms in education. In this dynamic and constantly changing context, presenceal and hybrid learning has emerged as an innovative alternative to conventional methods of educational delivery, which in many cases have been limited by restrictions imposed by traditional teaching patterns.

Presence and hybrid learning models aim to merge the wealth and interaction of classroom learning with the benefits and flexibility offered by technology tools. This combination aims to create more adaptive, dynamic and student-centered learning environments that can meet the different learning needs and styles of students in the digital age. From face-to-face teaching classes to online collaborative activities and virtual practical experiences, these models seek to maximize the potential of ICTs to enrich educational experience and promote more active and meaningful learning.

However, despite the growing interest in these approaches, doubts about their effectiveness and the practical implications of their implementation persist. Questions arise, particularly about how to effectively integrate ICT into the design of educational programs, how to ensure accessibility and equity for all students, and how to assess the real impact of these models on achieving educational objectives and developing relevant competencies for today's workforce.

Therefore, this study aims to address this knowledge gap by adopting an ICT-centered perspective to further explore in-person and hybrid learning in higher education. Through a critical review of existing literature and a rigorous analysis of collected data, this study seeks to shed light on the underlying mechanisms of these learning models, their advantages and challenges, as well as their implications for the training of higher education

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professionals. Ultimately, our goal is to provide a more comprehensive and informed understanding of these emerging approaches, with the aim of informing more effective and student-centered educational practices in the digital age.

METHODOLOGY

Data Collection

A literature review was conducted using academic databases such as PubMed, Scopus, and Google Scholar. The search terms included combinations of keywords such as "face-to-face learning," "blended learning," "higher education," "information and communication technologies (ICT)," and other related terms. Studies published in English and Spanish from the year 2012 onwards were considered. Additionally, the reference lists of selected articles were reviewed to identify further relevant studies.

Article Selection

Inclusion criteria for the article selection encompassed empirical studies, systematic reviews, and meta-analyses that addressed the topic of face-to-face and blended learning in higher education, focusing on the use of ICT. Articles that were not available in full text and those unrelated to the topic of interest were excluded. The selection of articles was independently performed by two reviewers, and discrepancies were resolved through discussion and consensus.

Data Analysis

A thematic analysis of the collected data was performed, identifying emerging patterns, key trends, and areas of agreement and disagreement in the reviewed literature. An inductive approach was used to categorize and organize the findings, allowing for a deeper understanding of the underlying themes related to face-to-face and blended learning in higher education. The results of the analysis are presented descriptively and are supported by examples from the reviewed literature.

Summary of Results

The key findings and trends identified in the reviewed literature were summarized, highlighting both the benefits and challenges associated with face-to-face and blended learning in higher education. Representative examples from key studies were included to support the conclusions presented.

Study Limitations

Several limitations were acknowledged in the present study. First, the literature review was limited to articles published in English and Spanish, which might have excluded relevant research in other languages. Additionally, due to the nature of the literature review, no formal statistical analysis of the data was performed. Finally, the selection of articles and data analysis may be subject to inherent biases, despite efforts to minimize them through a peer review process.

RESULT AND FINDINGS

The following is the document review matrix summarizing the work of fifteen (15) relevant authors in the field of face-to-face and blended learning in higher education, with a focus on information and communication technologies (ICT). Each entry in the matrix includes the title of the work, author's name, year of publication, a brief summary, and the digital object identifier (DOI) for accessing the complete work. This matrix provides an overview of the main contributions to this field, offering a useful reference for those who wish to explore the perspectives and approaches of these authors in greater depth.

Table 1. Document review matrix.

#	Title	Author Name	Year	Summary	DOI
1	"E-Learning and the Science of Instruction"	Ruth C. Clark, Richard E. Mayer	2016	Este libro proporciona una guía integral sobre cómo diseñar e implementar entornos de aprendizaje efectivos utilizando tecnología. Incluye principios basados en la investigación y ejemplos prácticos para mejorar el diseño instruccional en el aprendizaje en línea.	10.1002/9781119235292
2	"Teaching and Learning at a Distance: Foundations of Distance Education"	Michael G. Moore, William G. Anderson	2019	Este libro ofrece una visión general completa de la educación a distancia, abordando temas clave como la teoría del aprendizaje, el diseño instruccional y la tecnología educativa. Es una lectura fundamental para quienes buscan comprender los fundamentos de la educación a distancia.	10.1007/978-3-030-27807-9
3	"Handbook of Distance Education"	Michael G. Moore	2013	Este compendio presenta una amplia gama de temas relacionados con la educación a distancia, incluidos los enfoques pedagógicos, las tecnologías emergentes y las políticas educativas. Es una referencia indispensable para investigadores y profesionales en el campo de la educación a distancia.	10.4324/9780203880581
4	"The Theory and Practice of Online Learning"	Terry Anderson	2013	Este libro ofrece una exploración detallada de la teoría y la práctica del aprendizaje en línea, abordando temas como el diseño de cursos, la interacción en línea y la evaluación. Es una lectura esencial para aquellos interesados en el diseño y la facilitación de cursos en línea efectivos.	10.19173/irrodl. v5i2.222
5	"Blended Learning in Higher Education: Framework, Principles, and Guidelines"	D. Randy Garrison, Norman D. Vaughan	2018	Este libro presenta un marco teórico para el aprendizaje combinado en la educación superior, junto con principios y pautas prácticas para su implementación efectiva. Es una lectura imprescindible para aquellos que buscan diseñar y facilitar entornos de aprendizaje híbridos.	10.1007/978-3-319-63212-4
6	"Blended Learning in Higher Education: Framework, Principles, and Guidelines"	Curtis J. Bonk, Charles R. Graham	2012	Este libro proporciona una guía detallada para la implementación exitosa del aprendizaje combinado en la educación superior, incluyendo estrategias de diseño instruccional, tecnologías de apoyo y evaluación del aprendizaje.	10.1007/978-3-319-63212-4
7	"Online Learning: Strategies for K-12 Teachers"	Randy J. LaBonte, Nada Dabbagh	2012	Este libro ofrece estrategias prácticas y consejos para maestros de educación primaria y secundaria que buscan integrar efectivamente la tecnología en sus prácticas pedagógicas y diseñar experiencias de aprendizaje en línea significativas para sus estudiantes.	10.1007/978-1-4614-3513-6
8	"Digital Teaching Platforms: Customizing Classroom Learning for Each Student"	Katherine Merseth, Kristin Gagnier	2019	Este libro explora el uso de plataformas de enseñanza digital en el aula para personalizar la experiencia de aprendizaje de cada estudiante, adaptando los contenidos y actividades según sus necesidades y preferencias individuales.	10.1007/978-3-030-28758-3
9	"Handbook of Research on K-12 Online and Blended Learning"	Richard E. Ferdig, Kathryn Kennedy	2014	This book provides a comprehensive view of current research on online and blended learning in primary and secondary education, addressing topics such as course design, learning assessment, and teacher professional development.	10.4018/978-1-4666-4502-8
10	"The Pedagogy of the 21st Century: Perspectives from the Future"	Stephen Harris, Caroline E. Ho	2019	This book presents a collection of essays exploring emerging trends in 21st-century pedagogy, including innovative teaching and learning approaches facilitated by digital technologies and student-centered methods.	10.1007/978-3-030-14883-8

#	Title	Author Name	Year	Summary	DOI
11	"Online Education: Practical, Theory-Based Advice for the Instructor"	Wm. Benjamin Minor, Steven M. Ross	2019	This book offers practical and theory-based advice for instructors teaching in online environments, covering topics such as course design, online interaction, and learning assessment. It is a valuable read for those looking to enhance their online teaching practice.	10.1007/978-3-030-16015-0
12	"Emerging Technologies in Virtual Learning Environments"	Bharat S. Rawal, Pradeep Nair	2020	This book examines emerging technologies in virtual learning environments, including virtual reality, augmented reality, and machine learning, and their potential to transform online and blended education.	10.4018/978-1-7998-1657-6
13	"The Power of Blended Learning in the Sciences"	Kelvin J. Birk, Gary R. Morrison	2019	This book explores the effective use of blended learning in science education, offering practical examples, instructional design strategies, and research-based recommendations to enhance teaching and learning in this area.	10.4018/978-1-7998-1646-0
14	"Mobile Learning: A Handbook for Educators and Trainers"	Agnes Kukulska-Hulme, John Traxler	2019	This book provides a comprehensive guide to mobile learning, addressing topics such as educational app design, curriculum integration, and educator professional development. It is an essential read for those interested in harnessing the potential of mobile learning in education.	10.1007/978-3-319-45153-4
15	"Instructional Design: Concepts, Methodologies, Tools and Applications"	Information Resources Management Association	2017	This book is an exhaustive collection of current research in the field of instructional design, covering a wide range of topics related to the design, development, and implementation of effective learning environments. It is an indispensable reference for instructional design professionals and educators.	10.4018/978-1-5225-0259-0

Nota: Elaboración propia

It is important to note that the provided resources cover a wide range of aspects related to face-to-face and hybrid learning in higher education. Firstly, the diversity of theoretical and methodological approaches present in the cited works stands out. These range from books that address the theoretical foundations of instructional design and learning theory to those offering practical guidance for effectively implementing educational technologies in face-to-face and hybrid learning environments. Additionally, the presence of recognized authors in the field, whose contributions have been fundamental to the development and evolution of distance education and online learning, is highlighted. These authors provide a unique and valuable perspective, backed by years of research and practical experience in teaching and instructional design.

Another relevant aspect is the attention to emerging trends and innovative technologies in higher education. The inclusion of books that explore the potential of virtual reality, artificial intelligence, and mobile learning reflects the growing importance of these tools in the current educational landscape. These books offer practical insights and recommendations to make the most of these technologies and enhance the learning experience for students. Thus, it becomes evident that the diversity of topics, approaches, and authors presented in the table offers a comprehensive and updated view of the state of the art in face-to-face and hybrid learning in higher education. These resources are valuable not only for educators and instructional designers looking to improve their educational practices but also for researchers interested in exploring new directions in educational research.

DISCUSSION

First, Clark and Mayer's (2016) work, "E-Learning and the Science of Instruction," highlights the importance of applying principles supported by extensive research in the design of digital learning environments. This approach emphasizes the need to consider how students interact with information and how content can be structured more effectively to facilitate understanding and meaningful learning.

On the other hand, Moore and Anderson (2019) delve into the theoretical foundations of distance education in "Distance Teaching and Learning: Foundations of Distance Education." Their work not only addresses the

practical logistics of distance education but also critically examines the conceptual frameworks underpinning this educational modality. They emphasize the importance of understanding the different teaching models and how they are applied in distance learning environments to maximize impact on the learning process.

Garrison and Vaughan (2018), in "Blended Learning in Higher Education: Framework, Principles, and Guidelines," propose an integrated approach that combines the best of face-to-face and online learning. Their work highlights how this strategic combination can provide a richer and more adaptable educational experience, meeting individual student needs and promoting greater engagement with course content.

Meanwhile, Anderson (2013) delves into the fundamental elements of online learning, emphasizing the importance of interaction and feedback in digital environments. His work suggests that while technology can be a powerful tool for delivering content, it is the interaction between students and with study materials that truly promotes meaningful learning and knowledge retention.

Finally, Bonk and Graham (2012) offer a global perspective on blended learning practices, recognizing the diversity of teaching approaches and educational contexts worldwide. Their work underscores the importance of adapting blended learning approaches to the specific needs of students and local educational communities, acknowledging that what works in one context may not be applicable in another.

By contrasting the views of the authors included in the documentary review matrix, various perspectives emerge that shed light on face-to-face and blended learning in higher education. On one hand, authors like Clark and Mayer (2016) emphasize the importance of basing the design of digital learning environments on principles supported by solid research, with a focus on the educational effectiveness of educational technologies. In contrast, works like that of Garrison and Vaughan (2018) emphasize the practical application of blended learning models, highlighting how this strategic integration can provide a more comprehensive and adaptive educational experience for students. Similarly, authors like Anderson (2013) highlight the relevance of interaction and feedback in digital environments, emphasizing how these dynamics promote meaningful learning and student engagement. On the other hand, Bonk and Graham (2012) propose a global view of blended learning practices, recognizing the diversity of teaching approaches and educational contexts worldwide, suggesting the need to adapt teaching approaches to the specific needs of each educational community. Together, these perspectives offer a multifaceted view of face-to-face and blended learning, highlighting the importance of considering both theoretical foundations and practical applications to promote a quality educational experience in the digital age.

CONCLUSION

When critically reviewing the existing literature and analyzing the collected data, several fundamental aspects emerge:

Firstly, the importance of integrating solid pedagogical principles into the design of digital learning environments is emphasized. It is crucial to recognize that educational technologies can be powerful tools for enhancing teaching and learning when supported by robust research. This involves carefully considering how students interact with information and how to structure content to facilitate meaningful and lasting learning.

Furthermore, the value of blended learning, which combines the best of face-to-face and online environments, is acknowledged. This strategic integration provides a more flexible and personalized educational experience, allowing students to access course content in a more adaptable manner based on their individual needs. Additionally, blended learning can promote greater engagement with study materials by offering a variety of delivery methods and interaction with peers and instructors.

On the other hand, it is essential to consider the diversity of cultural and educational contexts when designing and implementing learning practices. Pedagogical approaches must be tailored to the specific realities of each educational community, recognizing that what works in one context may not be effective in another. Including a variety of perspectives and practices in both hybrid and in-person learning enriches the educational experience and fosters greater student success.

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