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Review Article

The Effectiveness of Blended Learning in the UAE Secondary Schools—Literature Review

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ABSTRACT

The worldwide view of education has experienced a significant shift due to technical improvements and the COVID-19 epidemic. The pandemic's disruption led to the adoption of contemporary technologies like blended learning and online learning by international educational institutions. Calls for converting educational material to electronic forms have arisen as there is a rising realization that conventional education must change to meet the job market's needs. The benefits of innovative and traditional education may be combined via blended learning. As a result, the primary goal of this article is to review the research article with a systematic review as an added value. PRISMA is used to guide the review process. However, three databases were used: Scopus, Web of Science, and Google Scholar. According to the articles, this study's findings investigated (1) existing knowledge gaps of blended learning; and (2) the effectiveness of blended learning within the UAE secondary schools. Nine articles were evaluated within a limited period of 2020 to 2023, two were qualitative research, five were quantitative, and two were mixed research. The findings showed the effectiveness of blended learning in UAE secondary schools; however, it needs more research, practical implementations, and experience to make blended learning successful. In addition, the issues and challenges of some factors that impact the effectiveness of blended learning are also discussed. The results of this study constitute a valuable contribution to the existing body of scholarly knowledge and have practical implications for educational policymakers, administrators, and instructors.

Keywords: Blended learning, blended learning effectiveness, UAE secondary schools

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INTRODUCTION

Blended learning combines traditional face-to-face teaching with online educational resources and tools (Tucker et al., 2020; Cronje, 2020). According to Hensley (2020), blended learning is a structured educational approach that allows students to have flexibility in determining the timing, location, and pace of their learning (Graham, 2021). Farrington et al. (2014) indicated that blended learning utilizes contemporary technological tools and devices to align learning objectives, content, resources, activities, and communication methods. This approach enhances knowledge acquisition, information, skills, and attitudes. Also, Ismail et al. (2020) found that blended learning supports the field of education, and it aligns with the findings of Farrington, et al. (2014) research, which suggests that it can enhance the educational process by integrating face-to-face instruction with electronic learning platforms. This approach facilitates various academic activities, such as assessments, self-directed learning, and cooperative learning. Moreover, it is grounded in the notion that students are responsible for learning through diverse educational methods.

The UAE Vision 2021 agenda included a comprehensive section on the current state of education in the UAE to elevate the UAE's education system to the highest levels and implement smart education systems, and the terms for developing the educational sector were dubbed "High-level educational system." The education agenda items said that the future years will see a total transformation of learning and education systems, with schools and universities outfitted with smart devices and systems and curriculum, projects, and research conducted through these smart systems along with defining targets that raise students' educational levels and increase the number of secondary school graduates. "Blended learning" is one of the primary pillars supporting the educational process's quality and sustainability in the new academic year 2020–2021. Experts and officials from the state's educational institutions emphasized that the state's proactive approach and forward-thinking vision enabled the establishment of a sophisticated technical infrastructure that enabled educational institutions, whether schools or universities, to implement a variety of educational options in light of the extraordinary circumstances, noting that blended learning is an ideal option. Contributes to improving the educational system and enhancing the capabilities of all its constituents.

Our wise leadership's forward-thinking vision resulted in investment in smart learning and the establishment of modern technological infrastructure in different educational institutions, which aided in the achievement of the educational system's change toward the use of blended learning. This demonstrates that blended learning benefits both students and staff members. It adds to the enjoyment and enthusiasm of the educational process. UAE university presidents and academics gathered on June 13, 2020, for a conference titled "The

Experience of Distance Education in the Emirates." The conference's purpose was to discuss the crucial connection between the level of quality in intelligent education and the number of qualified teachers and educational resources. Others emphasized that traditional education was vanishing and that a national committee was required to convert traditional educational content to electronic format to keep up with labor market requirements.

However, most agreed that blended learning is the best solution because it combines the two types of education (smart and traditional). The UAE decided to adopt and implement the blended learning system. Establishing clear policies and guidelines that apply to all parties involved in the educational process, starting with the leadership of the schools and universities, moving on to the teaching staff, the students, and finally, the parents which helped to achieve it. These procedures and directives ensured that the roles and responsibilities assigned to each party were crystal clear, with a particular focus on training and rehabilitation (Abedeen, 2020). In the UAE, the implementation of recent reforms and restructuring in the past few years has emphasized the prominence of new, more collaborative forms of school goals to achieve the blended learning goals (Ministry of Education [MoE], 2020).

Despite the efforts that have been made to adopt blended learning in the UAE context, several barriers limit the complete implementation of this technique because it incorporates many pedagogical approaches and emphasizes mastery of the art of educational administration, blended learning necessitates the leadership of highly skilled individuals with a wealth of relevant professional experience. Blended learning is not a stopgap measure for crises. Instead, it is a new transition in the education process, and the crisis of COVID-19 only expedited the emergence of this transformation. In addition to that, the UAE secondary teachers' inability to use technology effectively, unwillingness to change, lack of confidence, and lack of available time are contributing factors. The hesitation of educators to depart from the tried-and-true practices that have become second nature to them is an example of resistance to change. (McComas, 2019).

In secondary schools, teachers cannot properly engage their students in the classroom (Coffman et al., 2007) because students at secondary schools are digital immigrants who cannot integrate new technology into their classrooms due to their non-digital cultural histories. These classes are chosen because they are necessary for full awareness when technology is used in research and knowledge, and they are more suitable for assessing the level of successful classroom interaction with blended learning. Students need more opportunities to communicate with one another and participate actively in the learning process. Most students quickly master social media platforms like Facebook, wikis, Twitter, and blogs, transforming teaching and learning in interesting new ways. However, pervasive technology causes worries among those

responsible for its upkeep and payment. Any school, regardless of size, may have unprepared students for blended or online learning.

Also, the most significant challenges will be finding the time, balancing student expectations with school culture, and satisfying their desire to experiment with new teaching methods (Cruywagen et al., 2020; Picciano., 2011) found that performance expectations and the learning environment impacted Blended Learning students' satisfaction. Students say that flexibility makes it harder to communicate with teachers and classmates (Bouilheres et al., 2020). Blended Learning may isolate students, primarily if teachers do not support social networking and community formation (Borup et al., 2020). Blended learning lets students review and study again. Bouilheres et al. (2020) also found that introverted students favored integrated learning. Students are more inclined to accept if they have spent time learning about new technology and made industry ties (Venkatesh et al., 2014). Blended Learning must promote social interaction and an effective learning environment (Boelens et al., 2017). Blended learning outperforms conventional schooling. Thus, Khader (2016) wanted to study it. Many studies, such as (Alzobun, 2020; Rababa, 2021; Kumar et al., 2021), have stressed the necessity of adopting blended learning to teach students (Fauziyaah et al., 2019).

On the other hand, despite previous studies that succeeded in extracting the success of blended learning, instructing in blended environments can open the door to new risks; the students are revolutionizing learning in thoroughly new and intriguing ways. Also, the extensive availability of technology causes concern among the stakeholders responsible for its ongoing maintenance and payment. In addition, just as at any school, regardless of its size, there is always the possibility that some students need more time to be prepared for blended learning. Students with difficulty with self-efficacy, managing time, preparing for their education, and learning independently may encounter challenges. Therefore, the most considerable difficulties for teachers who are open to the idea of a course that uses technology as a medium will be finding the time, juggling the expectations of the students, fitting in with the school's dominant culture, and satiating their desire to try out novel teaching strategies. (Picciano, 2011). To achieve these objectives, the study endeavors to address the two most important questions:

1. Is Blended Learning effective in UAE secondary schools?

2. What blended learning areas are least explored in UAE secondary schools?

The research will improve our understanding of organizational environmental needs. Blended Learning will increase classroom participation. Blended learning helps to explain contradictory research findings. Thus, researchers may be encouraged to conduct additional studies and compare their results to new and

ongoing research in other fields. The findings also assist decision-makers, principals, supervisors, curriculum officers, and training and professional development administrators in comprehending teachers' Blended Learning challenges. It is possible to devise and implement solutions. This research may assist public school administrators in developing Blended Learning assessment methods. They also create grading rubrics. This research may aid instructors in enhancing their instructional practices, implementing blended learning effectively, and selecting the most appropriate technology for the new blended learning curriculum. Blended education can customize information for students, instructors, and administrators of all educational systems; make education accessible to anyone, anywhere, and at any time; reconcile the digital divide between Blended Learning practices; and integrate Blended Learning into the curriculum. Students can navigate the curriculum and communicate with instructors via email, group study sessions, and other means. Teachers may assist students with preparing scientific materials and group study.

METHODOLOGY

The primary objective of this study is to evaluate the effectiveness of blended learning and the level of blended learning in the context of UAE secondary schools and apply this knowledge to future directions. Depending on the factors of the study, exhaustively investigating, acquiring, and evaluating the critical information yields reform proposals that can be implemented. The following criteria were searched for the study to be included in the review: (1) studies published between 2020 and 2023 which is the period when blended learning was the basis of learning in the UAE due to the presence of the COVID-19 pandemic, (2) studies that investigated the blended learning levels, and blended learning effectiveness (3) studies that utilized either one or both quantitative and qualitative approaches, (4) primary studies, (5) peer-reviewed and literature studies, (6) studies related to secondary schools, and (8) studies that were published in the UAE context. We excluded studies that developed models or evaluated measuring equipment because we wanted to comprehend the empirical examination of blended learning effectiveness. Accordingly, we did not consider studies that (1) were not conducted in primary, middle school, or college (2) review articles, (3) published before 2020, and (4) had results that were not specific to blended learning levels or blended learning effectiveness. It is important to note that this review only focused on studies published in the recent four years to ensure the relevance of the constructs and their relationships, issues surrounding the constructs, and the identification of current findings and methodological approaches. This review scoured relevant databases to locate all pertinent literature on the effectiveness of blended learning. Discuss sampling, inclusion and exclusion, and data analysis. Searching Technique This systematic literature review employs

"blended learning" and "effectiveness of blended learning."

The authors then systematically investigated the literature on the effectiveness of blended learning after the 2020 COVID-19 pandemic-induced change in general instruction and learning methods, which is crucial. Utilizing search strategies, pertinent research papers that met the study's objectives were located. Use the Web of Science, Scopus, and Google Scholar to find relevant scholarly articles. The three most prominent social science databases are listed below. "Effectiveness of blended learning" was the primary focus of the investigation. These keywords were used to search each database for integrated learning effectiveness studies. Since peer-reviewed publications are more credible scientific sources, they were our study selection criterion.

Table 1
Setting the screening range: Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
• Empirical research examines the level of blended learning and the effectiveness of blended learning	• Research, not empirical studies, not research publications, not conference papers, not books, not literature reviews
• Research published in 2020–2023	• Research published before 2020
• Research in secondary schools	• Research not primary and middle schools
• Research in the UAE context	• Research is not in the UAE context

Source: Authors' work

Critical Appraisal

The selection of studies is one of the most important aspects of a systematic literature review (Farooq et al., 2018; Salam et al., 2017). Taking into consideration the recommendations of Moher et al. (2009), we devised a comprehensive selection procedure comprised of the following three steps:

1. Examining the titles of all retrieved research articles for compliance with the inclusion criteria described previously
2. Examining the abstracts and eligibility of the initially selected articles
3. Evaluating the complete comprehensive text for final inclusion by determining its suitability and compatibility with our research objectives

Initially, three databases (Web of Science, Scopus, and Google Scholar) yielded nearly 230 results. After eliminating duplicates from all three databases, nearly 113 unique articles remained. After the title and abstract screening, 47 articles were retained for full-text review, which were also relevant to the study's objectives. In this context, studies were categorized according to their aims and objectives. In addition, we utilized various data analysis

techniques for each cluster to answer our previously formulated research questions. Due to a variety of unavoidable factors, including non-operational positions of blended learning, a lack of emphasis on the efficacy of blended learning, vague and general discussion, non-compliance with our inclusion criteria, and a lack of online full-text documents, some articles were excluded during the full-text screening process, the first criterion in this SLR is that the author has set the year of publication within four years, referring to the period from 2020 to 2023. The mature study concept discussed by several scholars led to the selection of this year's range. According to Kraus et al. (2020), if the research context faces a lack of studies, the timeline or year of publication of journal articles should be increased again to avoid obstructed research questions. Following that, SLR restricts the type of publication to research articles only.

Third, the languages for the selected research articles were only Arabic and English to avoid confusion, which increased the time and cost for reviewing the selected article (Linares-Espinós et al., 2018). Fourth, the inclusion criteria for this SLR are limited to the UAE context to ensure a better understanding and comprehension, particularly for the effectiveness of blended learning in education. Finally, after screening the research articles from the database, those that do not meet the listed criteria will be rejected, while those that do will be kept. As a result, nine articles were retained, two were qualitative research, five were quantitative, and two studies were mixed research (quantitative and qualitative) that met the inclusion criteria. Using Moher et al.'s (2009) suggested reporting items for systematic reviews and meta-analyses (PRISMA), we devised a search strategy for a systematic literature review (Figure 1).

Analysis Approach

Each cluster was subjected to implementing a unique content and theme data analysis technique, for the first cluster, content, and topic studies were conducted to summarize the research expanding the efficacy of blended learning in numerous academic fields and its evolving challenges. The second cluster of papers was subjected to the content analysis method to evaluate the efficacy of integrated learning.

Following the evaluators' assessment of the article's quality, the follow-up action will perform data extraction and analysis. The ultimate focus of this study literature review is to conduct a survey that utilizes study data that discusses blended learning, and the effectiveness of blended learning among UAE secondary schools. In this regard, this data extraction effort will concentrate on three main elements: abstract, the study findings, and discussion written in the research article. However, if a more detailed explanation is needed, data extraction will involve other parts of the study. As an outcome, given that the articles involve a variety of different designs, such as quantitative type studies, qualitative type studies, and mixed-method type studies, a good synthesis for data analysis is a qualitative synthesis approach

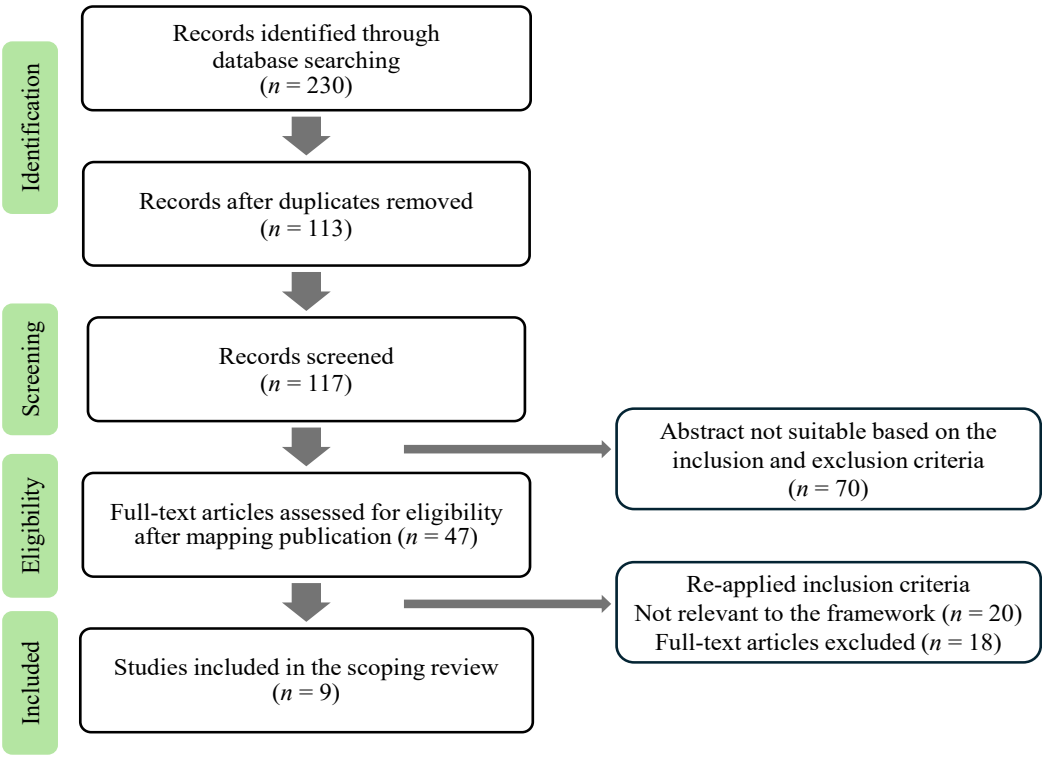

Figure 1: Flowchart of the study selection process
Source: Authors' work

for studies with a variety of different designs (Whittemore & Knafl, 2005). Correspondingly, thematic analysis is the most appropriate qualitative synthesis because it will obtain a clear picture through the data analysis process based on journal articles with various design types (Flemming et al., 2018). All extraction data will be categorized into each theme based on their similarities to obtain the appropriate theme in this study literature review. As a result, three themes were identified: (i) blended learning, (ii) the effectiveness of blended learning, (iii) blended learning levels, and (iv) UAE schools. All members of the study agreed that the four themes illustrated in the table below are appropriate for this study's literature review (Table 2).

FINDINGS

We summarize studies on blended learning in UAE secondary schools by discussing this study's main goals and research questions: (1) Is Blended Learning effective in UAE secondary schools? (2) What blended learning areas are least explored in UAE secondary schools?

To address this issue, we reviewed secondary school blended learning effectiveness studies and included researchers' key results and challenges when combining online and face-to-face

Table 2
Data extraction and analysis for the nine articles

Author and year	Research theme	BL	EBL	BLL	UAESS
Diabat and Aljallad (2020)	QNR	√	√	√	√
Minhas et al. (2021)	QLR		√		√
Al-Noursi (2021)	QNR	√	√		√
ElSayary (2021)	QLR	√		√	√
Alsalhi et al. (2021)	QNR		√		√
Alderbashi and Moussa (2022)	QNR	√			√
Tong et al. (2022)	QNR		√	√	√
Lhafra and Abdoun (2023)	MR	√			
El-Khouly (2023)	MR	√			

Note: QNR = Quantitative Research, QLR = Qualitiative Research, MR = Mixed Research., BL = Blended Learning, EBL= Effectiveness of Blended Learning. BLL= Blended Learning Level, UAESS = United Arab Emirates Secondary Schools.
Source: Authors' work

learning. Many academics have conducted systematic assessments of blended learning's effectiveness. The authors will use blended learning efficacy data from the last decade to begin the systematic assessment of this study literature review.

Blended Learning Definition

The first theme in this study literature review is the definition of blended learning, which is defined that blended learning has evolved along with technological advancements and how we apply these within the educational context (Minhas et al., 2021). According to Diabat and Aljallad (2020), blended learning is a curricular teaching method that combines in-person instruction with online learning. Abdel Nouri (2023) defined it as interweaving face-to-face instruction with online technologies. Therefore, blended learning combines online digital media with traditional classroom methods. It requires the physical presence of both teacher and student, with some element of student control over time, place, path, or pace. Since there are many widely recognized definitions of blended learning in literature, it's important to note that the field is constantly evolving in tandem with pedagogical approaches and educational technology. For this reason, blended learning can be thought of as an adaptive and flexible strategy that employs a range of teaching techniques to meet the needs and preferences of students (Jenkins et al., 2011).

Blended Learning Effectiveness

Blended learning's effectiveness depends on the student's performance. Researchers worldwide have studied blended learning efficiency elements and interactions since its inception. Due to rapid growth, increased need for productivity, innovation, creativity, and changing social needs, blended learning

is a good predictor of future generations. Because of this, "blended learning" has been researched for almost two decades and is a hot study subject that may spur innovation. This comprehensive literature study provides data for intuitive synthesis and in-depth analysis.

While there has been a surge in the use of blended learning approaches, there is a lack of research on their effectiveness in the UAE context (Bailey & Smith, 2013). Diabat (2020) examined how blended learning affected students' academic performance and reflective thinking in the UAE. The study included two groups of students from Al-Andalus Private Academy in Alain City. The participants were split into two groups: 25 students who received blended learning instruction and 23 who received conventional education. The research showed that the experimental group had higher reflective thinking scale ratings. Finally, the study underlines the importance of mixed learning in Islamic education.

Alsalhi et al. (2021) investigated how blended learning affects Ajman statistics and Bluman students' academic performance. This study employed a quasi-experimental design. The study comprised 268 students divided into two groups: an experimental group (n = 135) that employed blended learning and a control group (n = 133) that received traditional education. Results showed that the results of the experimental group of students varied by gender, favoring females. Students scored higher in the fourth academic year, indicating that the academic year had an effect. However, the data analysis showed no statistically significant differences between students by institution affiliation. The study advises implementing blended learning across educational fields.

Alderbashi and Moussa (2022) examined the usefulness of e-mind mapping in blended learning scientific courses in Emirati private secondary schools. The inquiry focused on pupils. The study included descriptive, analytical, and quantitative methods. The researchers self-designed a survey based on earlier studies. The above analyses were published in peer-reviewed journals. The survey forms were uploaded to Google Forms. Researchers employed purposive sampling. The researchers distributed the survey to 400 students at five UAE private secondary schools. The researchers utilized descriptive statistics. The study found that e-mind mapping and blended learning in Emirati private secondary schools' scientific courses are effective. This method encourages student innovation and boosts cognitive capacities. It aids pupils in self-directed learning. Helping students improve their writing skills. The researchers suggest teaching educators how to generate electronic mind maps using various software packages.

They also explored COVID-19 with Tong et al. (2022). Remote learners will find blended learning advantageous, increasing learner engagement. The best results for instructors and students are attained by optimizing pedagogical techniques and integrating online and in-person teaching modalities. This study examines the flex model of blended learning in teaching the

mathematics subtopic of coordinates in the plane to improve students' academic performance, self-directed learning, and learning attitudes. A quasi-experimental study compared the academic performance, self-study skills, and learning attitudes of 46 students in the control class who were taught conventionally and 44 students in the experimental group who were trained blended. This research gathered pre- and post-test results, observations, and a student opinion poll. SPSS and qualitative methodologies were used to analyze this data.

The study found that blended learning improves academic performance in the experimental group compared to the control group. An independent t-test of the two groups' post-test findings supports this conclusion. Observations and student opinion surveys showed that blended learning improved academic achievement, self-study abilities, learning attitudes, and student involvement with instructors. Due to timing constraints, some experiment students were unable to progress. However, the study's tiny sample size may have restricted its applicability to a broader population. Therefore, further study is needed to improve instructional approaches and educational results across blended learning modalities. Expanding the scope of blended learning studies in other academic areas or increasing the sample size may also be helpful.

Factors Impact the Effectiveness of Blended Learning

Few empirical data exist on teachers' perspectives on these topics. Minhas' (2021) qualitative study employed focus groups to get teachers' perspectives on blended learning approaches. The research found three main themes: professional advancement, student accomplishment, and blended courses. The research also finds that self-directed learning and informal communities of practice influence perceptions and improve effectiveness. The teachers asserted that it influenced student achievement most. This study may help schools enhance student experiences through blended learning. Al-Noursi (2021) found that the teacher and student must be present in a traditional classroom. Therefore, the online environment is only partially exclusive. Mixed learning methods increase education and performance. ElSayary (2021) analyzes teachers' opinions and practices in applying reflective practice to STEM teaching in blended learning. The research began before the COVID-19 lockdown and lasted during the quarantine until the semester ended. The reflective practice paradigm combined transformational and experiential learning theories to guide the study. The sequential mixed-method research collected and analyzed quantitative and qualitative data. The qualitative data collection comprised Zoom-based semi-structured interviews with teachers. According to studies, after the COVID-19 epidemic, teachers' perceptions and instructional techniques moved toward future-oriented learning and essential skills.

Despite attempts, many educational institutions still provide blended learning as an alternative. The COVID-19 epidemic has proven the necessity for blended learning to sustain educational continuity. Blended learning is a realistic way to combine the advantages of in-person teaching with remote learning, according to several studies on COVID-19 and educational systems. This learning approach has limited application choices. Lhafra et al. (2023) present a hybrid learning approach integrating collaborative work and intelligent learner role allocation. This method aids adaptive learning in a mixed-learning environment. The proposed solution emphasizes active learning via collaborative effort using the Naïve Bayes algorithm and Belbin theory. Collaborative work helps balance in-person and remote learning by engaging and motivating students. Belbin hypothesizes that this study's results indicate an appropriate location for each participant. This cognitively engaging assignment encourages students to study actively rather than passively. El Khouly (2023) research examines students, teachers, and administrators' views on blended learning. The study examined the effects of blended learning on middle and high school students in a UAE private school using mixed approaches. This study included 60 students who completed a questionnaire and were interviewed. The poll invited 18 teachers. Additionally, teachers with various blended learning teaching expertise were interviewed. The study compared teachers' and students' views on blended learning to achieve its goals. The data analysis showed that teachers liked blended learning, but students did not. The study found that students encountered multiple issues that impacted their academic and emotional progress.

While there has been a surge in the use of blended learning approaches, there is a lack of research on their effectiveness in the UAE context (Bailey & Smith, 2013). As a result, the influence of these techniques on student learning results, teaching practices, and overall learning experiences in the area remains largely unexplored. To better understand the advantages and difficulties of implementing blended learning in the United Arab Emirates, as well as to devise tactics to enhance its efficacy within this distinct educational setting, further research is required. Also, Blended learning could accomplish several goals and make education accessible to whoever, at any time and place, supporting bridging the digital divide between blended learning practices and merging blended learning into the curriculum (Alsafadi et al., 2020). Individually, every student can navigate the educational material and the curriculum and interact with professors using various modes of communication, such as e-mail and group study sessions. Teachers may carry out the process of guiding and directing students via group study sessions and planning and producing their very own scientific materials.

Despite the efforts that have been made to adopt remote education, several barriers limit the complete implementation of this technique. These challenges include

incorporating many pedagogical approaches and emphasizing mastery of the art of educational administration; blended learning necessitates the leadership of highly skilled individuals with a wealth of relevant professional experience. Also, blended learning is not a stopgap measure to use in crises. Instead, it is a new transition in the education process, with the crisis of COVID-19 only expediting the emergence of this transformation. Blended learning necessitates technical prerequisites, including adequate infrastructure, the utilization of diverse information sources by students, virtual classes alongside traditional ones to facilitate mutual reinforcement, the availability of e-learning management software, and access to tools and resources for conducting simulation experiments. Besides, technical difficulties, financial burdens, and resistance from particular schools and teachers to adopting contemporary technology are all factors (Najadat & Alomari, 2020). Other factors related to students' need for more opportunities to communicate with one another and participate actively in the learning process.

Moreover, the teachers' inability to use technology effectively, unwillingness to change, lack of confidence, and lack of available time are contributing factors. The hesitation of educators to depart from the tried-and-true practices that have become second nature to them is an example of resistance to change (McComas, 2019).

DISCUSSIONS

Blended learning in UAE secondary schools can significantly enhance educational outcomes by addressing local challenges and catering to student needs (Lemana II et al. 2023). Government support is crucial in implementing effective blended learning strategies, as seen in the UAE's initiatives to incorporate smart learning environments in education systems (Efstratopoulou, 2024). Challenges such as technological difficulties, low student engagement, and academic dishonesty must be overcome to create engaging and interactive online learning environments (Lemana II et al. 2023). Additionally, focusing on the specific needs of students, including those with disabilities, is essential for successful implementation, as highlighted in the importance of supporting students with disabilities during e-learning experiences (Alhammadi, 2024). By leveraging government backing and tailoring approaches to local contexts, UAE schools can better prepare students for the demands of a globalized economy, ensuring their readiness for future challenges. In addition to that, The incorporation of blended learning into the UAE educational system faces challenges from parents and teachers who are used to conventional teaching techniques. A careful balance is needed to protect cultural values and academic standards (Efstratopoulou, 2024).

Furthermore, to make blended learning effective and valuable, schools must emphasize the importance of addressing the specific challenges faced by teachers, including the necessity

for professional development in digital literacy and instructional design. Teachers' perspectives on implementing blended learning are crucial for understanding the support and resources required to achieve successful outcomes (Alawadhi, 2024). Studies have shown that while blended learning offers benefits such as increased flexibility and accessibility, teachers also encounter barriers like increased workload and technical issues (Alawadhi, 2024). Therefore, providing adequate professional development opportunities and support for teachers in developing their digital literacy skills and instructional design capabilities is essential for the effective implementation of blended learning in UAE secondary schools.

To provide a complete framework, this research needs to be extended. Further study is needed to provide a universal paradigm for integrated learning effectiveness. Despite blended learning initiatives, many barriers limit extensive research:

1. This study examines secondary school blended learning's effectiveness.

2. This research is UAE-specific.

3. The COVID-19 pandemic hastened this transition. Hence, this study covers 2020–2023.

The study needs additional publications. Despite the author's decade-long investigation, defining and evaluating all the components takes work. This research must also include suggestions for blended learning efficacy. Blended learning blends various types of education into the educational process, requiring significant expertise and experience. We used secondary data from previous investigations to achieve this study's goals. Future integrated learning research may survey essential individuals to acquire primary data. As indicated, this research was confined to a literature review, making empirical and cross-cultural assessment unfeasible. Future studies may assess integrated learning's efficacy across cultures. Longitudinal studies must assess integrated learning's long-term impacts.

CONCLUSION

Despite the limitations mentioned earlier, the results of this study have made a substantial contribution to the corpus of knowledge by integrating the diverse and extensive literature on integrated learning interactions. This study provides a comprehensive literature review on emergent blended learning to comprehend its critical role in schools. The findings indicate that integrated learning interactions provide reciprocal benefits for all parties involved by substantially enhancing the educational community. This study's findings also revealed that integrated learning interaction was extensively utilized in various academic disciplines and that many academics acknowledged its efficacy. In addition, an evaluation of the blended learning interaction frameworks currently utilized by stakeholders revealed that some of these frameworks require additional blended learning interaction components to implement classroom engagement effectively. The essential impact of

integrated learning interactions must thus be investigated further.

Limitations

Blended learning has emerged as a prominent subject of investigation, prompting the author to comprehensively examine and evaluate the prevailing research patterns over the last decade. However, it is essential to acknowledge that this systematic study has inherent limitations. The author has only looked at factors influencing the effectiveness of blended learning between 2020 and 2023, which limits the temporal scope of the current systematic review. Consequently, the study needs to analyze other periods comprehensively. The second limitation is the limited quantity of papers examined. Despite the author's decision to extend the study's duration to include ten years, not all aspects that have been investigated can inevitably be categorized and thoroughly analyzed. Simultaneously, it should be noted that the author's examination is confined to secondary schools, excluding schools at other educational levels from consideration. It is noteworthy to mention that the writers conducted a thorough screening of significant elements throughout the analysis and summary process.

Implication

Subsequent research endeavors about the efficacy of blended learning may revise the temporal framework, considering the constraints elucidated by the author of the plea above. In a society characterized by perpetual development and change, the requisites and regulations of education are also susceptible to ongoing modifications and adaptations. In the given setting, the subjective condition of blended learning will consistently engender processes and phenomena of adjustment and transformation. Hence, the researchers want to investigate the concept of continuous exploration. This study provides an overview that can serve as a reference point for future occurrences in school organizations, specifically regarding classroom interaction in the blended learning environment. It aims to evaluate and analyze the effectiveness of blended learning by examining the influencing factors identified in this study. The findings can offer insights for potential improvements and contribute to a better understanding of blended learning practices and strategies. Simultaneously, secondary education administrators must exhibit solid managerial skills to support and assist educators in enhancing their blended learning methodologies.

Firstly, it is recommended that educational institutions offer differentiated degrees of support for teachers at different phases of their careers, such as providing instructional guidelines for beginner educators and facilitating opportunities for professional growth. In addition, governmental agencies and educational establishments must collaborate to promote the advancement of initiatives and secure funds for the comprehensive enhancement of campus infrastructure and technological resources. This collaboration is crucial to providing optimal support for educators'

instructional endeavors and scholarly research undertakings. It is essential to guarantee the proper distribution of students and teaching assignments, the employment of skilled rookie instructors, and the rehiring of exceptional professors to ensure the effective execution of educational activities.

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