

**An Inquiry into the Implementation of Blended Learning During and Post COVID-19  
Pandemic in Algerian Universities**

A DISSERTATION

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### **Abstract**

In the wake of the Corona Virus Disease of 2019 (COVID-19) pandemic and its widespread impact, higher educational institutions have been compelled to embrace blended learning, an instructional approach that melds technological tools with traditional face-to-face teaching. This method has seen a surge in popularity as technological advancements have reshaped pedagogical practices, making it a natural choice in the shift necessitated by the exigencies of the global pandemic. This study sets out to delve into the deployment and ramifications of blended learning during this unprecedented time. The research process was rooted in a qualitative approach, incorporating both questionnaires and interviews. A sizeable sample of 175 master's level students and 9 teachers lent their experiences and perspectives to this exploration, contributing to a rich and varied data set. This data was then meticulously analysed to extract key findings. The investigation vividly underscores the potential benefits inherent in blended learning, such as increased convenience for learners, autonomy, and improved student engagement. However, it also showcases the associated challenges. Limited interaction and communication, difficulties in the assessment process, and a need for robust institutional support emerged as significant hurdles. These challenges underscore key areas where concerted efforts and resource allocation can lead to substantial improvements. Providing an in-depth look at the practicality and efficacy of blended learning in a time of crisis, this study contributes valuable insights to the field of educational research.

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## General Introduction

Students worldwide have experienced significant disruptions in their education due to the COVID-19 pandemic, with school closures averaging 15 weeks (4 months) globally and up to 26 weeks (6.5 months) when considering partial closures (UNESCO, 2021). In response, education systems have rapidly implemented remote and hybrid learning models to ensure continuity of learning. However, the effectiveness of these efforts has varied, leading to the urgent need for targeted interventions to address learning gaps and improve educational outcomes (UNESCO, 2021). Blended learning, which combines instructional technology with face-to-face instruction (Driscoll, 2002), has emerged as a flexible and accessible approach to meet these challenges.

The landscape of higher education (HE) has undergone significant transformation, driven by digital advancements and the unprecedented circumstances imposed by the COVID-19 pandemic. This study aims to investigate the perceptions of teachers and students regarding the implementation of blended learning in Algerian universities during and after the pandemic. Algerian universities, like their global counterparts, faced the urgent need to adopt alternative instructional strategies to ensure the continuity of education Lamraoui (2021). Blended learning, with its integration of face-to-face and online components, became a viable solution for delivering engaging and effective education in this unique context. This research seeks to explore the perceptions of teachers and students in Algerian universities regarding blended learning implementation. By examining their perspectives, valuable insights can be gained into the effectiveness, challenges, and potential benefits of blended learning in the Algerian HE system. The study specifically aims to shed light on the experiences and perceptions of teachers and students during the implementation of blended learning, with a focus on the unprecedented circumstances presented by the COVID-19 pandemic.

## **Purpose for Research**

This research links in with the debate on whether students should keep learning a foreign language in the shadow of blended learning and if it is preferred to include more learning approaches in the Curriculum. This proposed research investigates the implementation of blended learning, and the results contribute to this debate after achieving its objectives:

- Exploring the perceptions and experiences of blended learning during & post pandemic.
- Investigate the challenges the teachers and students face.

## **Research Question**

The primary research questions driving this study are as follows:

- What are the perceptions of teachers and students regarding blended learning in Algerian universities?
- How was blended learning implemented in Algerian universities during the COVID-19 pandemic?

This research will also project its light on the following sub-questions:

- How students and/ or Teachers perceive the effect of blended learning?
- How was blended learning implemented during COVID-19 Pandemic?
- How did blended learning/teaching contribute to students' performance?
- How can the current implementations of blended learning be improved-upon?

## **Significance of The Study**

Addressing these research questions will provide a comprehensive understanding of the implementation and reception of blended learning in the Algerian context. To achieve this, a thorough review of the existing literature on blended learning in HE will be conducted. This review will identify gaps in knowledge and emphasize the significance of this research in contributing to the existing body of knowledge. By addressing these gaps, the study will provide a representative snapshot of the Algerian HE landscape and offer insights to guide the development of effective policies and strategies, not only in Algeria but also in similar educational environments worldwide. The study will employ qualitative research methods, including interviews and questionnaires, to gather in-depth perceptions from teachers and students. By using qualitative approaches, the study will explore their experiences, perspectives, and challenges encountered during blended learning implementation. Rigorous strategies will be implemented to enhance the validity and reliability of the study, while ethical considerations will be carefully addressed to ensure the integrity of the research process. The findings of this study hold practical implications for educational policy makers, institutions, and teachers involved in blended learning implementation. The following literature review chapter provides an overview of the existing research on blended learning in HE, examining its effectiveness, benefits, and challenges, and highlighting the gaps in the literature regarding its implementation in Algerian universities.

## **Literature Review**

### **Introduction**

The aim of this study is to investigate the implementation of blended learning during the COVID-19 pandemic. Consequently, this chapter provides a comprehensive overview of the available literature, beginning with exploring some of the known definitions of blended learning and its various models. It then delves into a detailed analysis of the pedagogical benefits and challenges associated with the implementation of blended learning. The context of the COVID-19 pandemic is then presented, highlighting its global impact and the world's response, with a particular focus on Algeria's educational response. The review further presents a synthesis of studies from around the world, encapsulating experiences and perceptions of students and teachers during this unprecedented shift in educational paradigms. Lastly, it identifies gaps in the existing Algerian literature on the subject and outlines how this study will address these gaps, thereby contributing to the broader literature on blended learning in the context of a global pandemic.

### **Face-to-Face & Online Learning Definition**

Defining face-to-face and online learning prior to introducing blended learning in the literature review is crucial to establish a foundation for understanding and comparing the different modes. Addis (2009) defined face-to-face learning as a setting where the primary mode of instruction takes place when students and instructors are physically present together. In the same vein, she defined online learning as a dynamic setting where students and instructors are physically separated, and instruction takes place through Internet-based communication and interaction. With these definitions, the necessary context is provided to explore how blended learning combines elements of both face-to-face and online learning



approaches. This allows for an examination of the potential benefits and challenges associated with blended learning in enhancing educational experiences.

### **Blended Learning Definition**

Defining blended learning and its models is essential for conducting a comprehensive study. By exploring different definitions and models, insights into approaches and variations are gained, enabling analysis and evaluation of the literature. It also aids in designing the study's methodology. The concept of blended learning is highly flexible and can be implemented in various ways depending on the specific educational context. The term blended learning has been in use since the 1990s (Friesen, 2012). However, there does not seem to be a consensus on a singular clear definition of blended learning. This is highlighted by many researchers such as Oliver & Trigwell (2005), Graham (2006), Picciano (2009), and Friesen (2012).

Even though there seems to be a variety of definitions of blended learning, all of which have overlapping descriptions and elements, it is still necessary to examine some of these definitions in order to gain a general understanding of the concept for the purposes of this study. Graham's (2006) definition of blended learning is one of the most frequently cited ones in the literature. According to him "Blended learning is the combination of instruction from two historically separate models of teaching and learning: traditional face-to-face learning systems and distributed learning systems. It also emphasises the central role of computer-based technologies in blended learning." (p. 4) This definition has gained significant popularity due to its clear, inclusive nature, and its acknowledgement of the transformative possibilities that arise from combining online and face-to-face instruction. It has provided a framework that has greatly influenced the way blended learning is understood and practised in diverse educational settings.

Building upon this definition, we can examine Picciano's (2009) two guiding definitions. The first, a broad definition as follows "blended learning can be defined or conceptualised as a wide variety of technology/media integrated with conventional, face-to-face classroom activities." (p. 4) Additionally, he provides a figure that demonstrates the ranges in which the learning that takes place can be considered blended or not. He presents two overlapping spectra. "Online to Face-to-Face" and "Technology Integration" Any learning that occurs within these continuums would be considered blended. He then goes on to provide a more specific definition that could focus on an online component that substitutes traditional classroom time, narrowing the scope to emphasise the replacement of in-person instruction with online learning. Meaning, a segment of the usual face-to-face instructional time is substituted with online engagement. This may involve online lectures, discussions, or assignments that students complete independently outside of the conventional classroom environment.

Similarly, Friesen (2012) reviewed various definitions of blended learning, noting the lack of clarity in early definitions. Through this, he suggested a composite definition as follows "Blended learning designates the range of possibilities presented by combining Internet and digital media with established classroom forms that require the physical co-presence of teacher and students." (p. 1) Furthermore, he designed a decision tree for blended learning. By serving as a heuristic, it aids in differentiating between courses that can be classified as blended learning and those that belong to other distinct categories. The classification process begins by examining teacher-student interaction, a crucial aspect of education. If no interaction exists, the course is classified as a self-paced virtual or correspondence course. With interaction, it differentiates between physical co-presence and virtual meetings. Physical co-presence indicates a cohort-based online course, while the absence prompts inquiry into meeting timing. If meetings do not occur during the course, it

suggests a face-to-face component. If they do occur, the final factor is whether content and communication are technically mediated, resulting in the classification of blended learning. Having established the foundation for defining blended learning, The next section will explore the models underpinning the designs of blended learning.

### **Blended Learning Models**

Explaining the models of blended learning is crucial for a comprehensive understanding of this instructional approach. It enables us to grasp the diverse design configurations and instructional strategies involved, facilitating further analysis and evaluation. By explaining the models of blended learning, research accuracy is enhanced, informed decision-making is facilitated, and the collective knowledge base on effective blended learning practices is advanced. With that in mind, in their report Staker and Horn (2012) introduced a revised blended-learning taxonomy and definitions that expanded on their earlier work (Staker & Horn, 2011). One significant modification involves eliminating two models, Face-to-Face Driver and Online Lab, as they appeared redundant and limited the flexibility of the categorisation scheme. This adjustment enables a more adaptable framework capable of encompassing the wide variety of blended-learning models in existence. The first model out of the four presented in their report is the Rotation Model.

**Rotation model.** The rotation model, as outlined by Staker and Horn (2012), offers a versatile approach to blended learning, allowing students to engage with multiple learning modalities to enhance their educational experience. The inclusion of online learning, along with various in-person activities, creates a balanced blend that serves different learning preferences and instructional goals. By cyclically transitioning between modalities, students have the opportunity to explore content through interactive online platforms, collaborate with peers in small-group or whole-class settings, work on hands-on projects, receive

individualised support, and complete traditional assignments. The classification of the Rotation Model into distinct implementations provides a framework for teachers to design and implement blended learning strategies that align with specific educational contexts and student needs.

***Station rotation.*** The first Implementation of the rotation model described by Staker and Horn (2012) is the station rotation model of blended learning that presents an effective framework that combines both online and face-to-face instructional elements within the classroom setting. By rotating through different learning stations, students benefit from a diverse range of modalities that cater to various learning styles and preferences. The inclusion of an online learning station provides opportunities for students to engage with digital content, interactive exercises, and online discussions. The collaborative activities and small-group instruction foster peer interaction and facilitate deeper understanding of the subject matter. The Station-Rotation model promotes a structured learning environment while allowing for some flexibility in terms of group dynamics and instructional pacing.

***Lab rotation.*** The lab rotation model of blended learning offers an innovative approach that combines the benefits of online learning with face-to-face interactions in different physical locations (Staker & Horn, 2012). By rotating among various campus locations, students can experience a diverse range of learning environments and modalities tailored to their specific needs. The dedicated learning lab for online learning serves as a hub where students can access digital resources, engage in virtual discussions, and participate in interactive online activities. The inclusion of other classrooms for different learning modalities provides students with opportunities for collaborative group work, individualised instruction, and traditional classroom experiences. This model recognises the importance of physical spaces in enhancing learning outcomes and allows students to adapt to different learning contexts.

***Flipped classroom.*** The flipped classroom model of blended learning presents a paradigm shift in traditional instructional practices by reversing the sequence of in-person and online learning components. By delivering content and instruction online, outside of regular school hours, students have the opportunity to engage with the material at their own pace and convenience. This approach fosters student autonomy and empowers them to take control of their learning journey (Staker & Horn, 2012).. Moreover, the Flipped Classroom model promotes active engagement during face-to-face sessions, where teachers can provide targeted support, facilitate discussions, and guide students through collaborative activities. The blend of online and in-person elements in the Flipped Classroom model optimises instructional time, allows for differentiated learning experiences, and cultivates self-directed learning skills.

***Individual rotation.*** In the individual rotation model of blended learning students have the advantage of a personalised schedule that supports their specific learning needs. This customisation allows students to engage with different learning modalities, including online components, based on their preferences and requirements. The Individual-Rotation model recognises that each student has unique learning styles and preferences, and tailors the instructional approach accordingly (Staker & Horn, 2012). By offering this flexibility, the model aims to enhance student engagement and create a more personalised and effective learning experience.

It should be noted that the rotation model is the only one out of the four that has its own set of sub-models because of the diverse ways in which rotation can be implemented in a blended learning environment. Each sub-model represents a unique approach to structuring students' learning experiences and schedules. The second model presented by Staker & Horn (2012) is the Flex Model.

**Flex model.** The flex model of blended learning presents a dynamic and flexible approach to instruction, leveraging the power of online content delivery while maintaining the presence of a teacher-of-record on-site. This model acknowledges the importance of student agency and individualised learning experiences by allowing students to navigate through various learning modalities based on their unique needs and preferences (Staker & Horn, 2012). The incorporation of face-to-face support by additional adults or teachers enhances the social interaction and personalised guidance for students, fostering a well-rounded educational environment. It is worth noting that the diverse range of implementations within the Flex Model provides an opportunity to explore different levels of face-to-face support, enabling teachers to tailor the model to suit specific educational contexts and student requirements. The Flex Model, with its emphasis on customisation and adaptability, holds promise for promoting student engagement, self-directed learning, and the integration of technology in meaningful ways.

**Self-blend model.** The self-blend model of blended learning offers students the autonomy to choose and incorporate fully online courses alongside their traditional brick-and-mortar courses. This model recognises the diverse learning needs and preferences of students, allowing them to supplement their education with online courses that align with their individual interests or requirements. By engaging in self-blended learning, students have the flexibility to personalise their educational experience, leveraging the benefits of online resources and instruction while still benefiting from face-to-face interactions with teachers in their other courses. This model promotes self-directed learning and empowers students to take ownership of their education by selecting the learning modalities that best suit their needs (Staker & Horn, 2012).

**Enriched-virtual model.** The enriched-virtual model offers a comprehensive education where students split their time between attending a physical school and

participating in remote online learning. In contrast to the Flipped Classroom, which primarily delivers instruction online outside of school hours, the Enriched-Virtual Model integrates online content delivery throughout the school day. This model, originally stemming from full-time online schools, has evolved to provide a blended approach that combines the advantages of both online and face-to-face learning. By merging the flexibility and personalised opportunities of online education with the socialisation and support of a physical school environment, the Enriched-Virtual Model caters to students who thrive in self-directed learning while valuing the structure and community of traditional schooling (Staker & Horn, 2012). The next section will take into consideration the benefits and challenges of implementing blended learning.

### **Benefits and Challenges of Blended Learning Implementation**

It is crucial to discuss both the benefits and challenges of this educational approach. As this literature review aims to enhance understanding of the blended learning approach, it is necessary to provide a balanced perspective on its potentialities and constraints. By presenting these aspects, we not only promote a holistic view of blended learning, but also situate this study within the wider discourse, identifying gaps and building upon existing knowledge. Notably, the benefits and challenges of blended learning will be discussed, drawing heavily on the works of Littlejohn and Pegler (2007) and Stein and Graham (2013). These scholars provide rich insights into the promises and pitfalls of blended learning, forming a solid basis for this discussion.

**Benefits of blended learning implementation.** When it comes to the benefits of blended learning, its flexibility and adaptability allow for a personalised learning experience, accommodating the unique needs of diverse students. A key strength lies in its modular design, which promotes agility and enables quick updates in response to changing

educational requirements. This approach also promotes student autonomy, enabling students to interact with digital resources based on their individual needs and pace, thereby fostering deeper engagement and understanding. Furthermore, the integration of technology stimulates an informal and instinctive blending of interactions, encouraging students to experiment, take risks, and apply their learning experiences to academic pursuits. Additionally, blended learning also promotes resource optimisation and cost-effectiveness for both students and institutions. Each of these benefits will be now discussed in detail.

***Financial feasibility.*** Transitioning to a blended learning approach does necessitate an upfront investment, but this model can yield significant cost-effectiveness over time. The efficiency is notably recognised when digital learning materials, adaptable to different student cohorts across various contexts, are utilised. Unlike traditional physical resources, these digital counterparts are inherently more shareable and reusable, providing an avenue for substantial cost reduction (Littlejohn & Pegler, 2007). Moreover, the financial benefits of blended learning courses extend beyond the classroom. For teachers and students, the flexibility associated with this model can result in less commuting time, transportation savings, and diminished parking expenses. Concurrently, institutions stand to gain from a more optimised utilisation of physical campus resources (Stein & Graham, 2013). Overall, the blended learning approach serves to drive cost-efficiency and value in the context of contemporary education, benefiting all stakeholders.

***Modular and convenient course design.*** Adopting a modular approach emerges as an effective strategy when designing courses for blended learning. This approach entails designing each instructional component as a discrete unit or chunk of learning. Such a configuration allows for agility and adaptability in the learning process, where resources can be quickly replaced or repositioned within the course structure based on the changing needs (Littlejohn & Pegler, 2007). Furthermore, blended learning courses create a unique



opportunity for teachers to amalgamate the most beneficial elements of both onsite and online learning environments. This integrated pedagogical model can contribute significantly towards enhancing efficiency, convenience, and learning outcomes (Stein & Graham, 2013). Therefore, through the implementation of a modular course design in tandem with a blended learning environment, teachers can foster a dynamic and responsive educational experience that aligns with contemporary pedagogical requirements and student needs.

***Enhanced student motivation and engagement.*** The integration of technology within and beyond the traditional classroom boundaries promotes an informal and instinctive 'blending' of interactions, stimulating students to experiment and take risks. This approach enables students to practice, make mistakes, and learn from their experiences, effectively transferring these insights to their academic pursuits (Littlejohn & Pegler, 2007). In parallel, online environments that encourage class discussions and collaborative activities can amplify student-to-student interaction, potentially augmenting their engagement with the subject matter and reaping motivational benefits from enhanced social exchanges. Furthermore, blended and online courses can facilitate a heightened focus on more pertinent work through dedicated course websites. This enhanced concentration may be attributable to improved instructional design, augmented guidance, and greater access (Stein & Graham, 2013). The result is more dynamic and engaging learning experiences, ultimately enriching the educational journey for students.

***Personalised learning opportunities.*** The dynamic nature of blended learning, characterised by the constant integration of electronic learning (E-learning) technologies, novel media formats, and emerging mobile learning opportunities, presents a continually evolving spectrum of prospects. This learning model facilitates a high degree of personalisation and customisation, enabling the adaptation of the learning environment to suit the unique needs of institutions, courses, tutors, and students. The increasing trend towards

student-led blending in e-learning, which allows them to exercise greater control over their educational journey, is a testament to this flexibility (Littlejohn & Pegler, 2007). Additionally, the digital materials integral to blended learning environments cater to students' individual needs by offering on-demand access and review capabilities. Automated assessments, commonly employed in online settings, provide immediate, corrective feedback, guiding students to revisit and consolidate their understanding of the materials (Stein & Graham, 2013). Therefore, the blended learning approach, with its amalgamation of personalisation, adaptability, and immediate feedback, serves as a robust tool for facilitating student centred education.

***Flexible instructional design.*** Blended courses often feature a heightened level of intentional design compared to their face-to-face counterparts. This detailed planning process frequently involves the collaboration of instructional designers or educational technologists, who aid faculty in a structured redesign process to enhance the course's effectiveness (Stein & Graham, 2013). However, it's crucial to recognise that improvements to e-learning and the ability to create optimal blended learning experiences cannot be realised without institutional change and the development of teaching and support staff. An effective approach to fostering this change and disseminating best practices in blended and online environments is through sharing of practices. Such collaborative engagement in course design and documentation allows for the reuse of successful templates across a variety of courses, contributing to an overall elevation in the quality of education delivered (Littlejohn & Pegler, 2007). Thus, intentional design and community-based learning practices are key elements in the effective implementation and advancement of blended learning courses.

***Guided pathways and easy access.*** In traditional face-to-face classes, students receive guidance from teachers during class time and refer to a syllabus for independent work. However, blended learning introduces a more structured approach, where the course

environment meticulously delineates the path through resources, activities, and assessments, offering explicit guidance at each stage. This model provides a clear roadmap for students to follow, bridging the gap between in-class and independent learning. Moreover, by placing materials and activities online, blended learning accommodates individual student schedules, allowing for flexible engagement with the coursework. This adaptability potentially fosters more thorough learning, as students can interact with the materials at their own pace and in their preferred setting (Stein & Graham, 2013). Consequently, the blended learning approach serves to enhance the learning experience by blending structure with flexibility, effectively accommodating the diverse learning needs and schedules of students.

**Challenges of blended learning implementation.** While the aforementioned benefits make blended learning an increasingly attractive educational model, its effective implementation is not without challenges. An in-depth understanding of the intricacies of this blended pedagogy is crucial for capitalizing on its benefits and overcoming the potential obstacles. Ranging from time and energy commitment, cost and resource investment, course redesign, accessibility, inclusion, to students' digital skills and confidence.

***Time and energy commitment.*** The design process for a blended course demands a considerable commitment of time and energy from teachers. It is essential for teachers to evaluate their availability realistically, considering the timeframe before the commencement of the course and allotting dedicated blocks of time weekly for course design. This planning phase should include determining the number of lessons to be prepared each week. Additionally, scheduling times for peer reviews of the course website by colleagues, students, or other stakeholders is a critical step. Post-launch, teachers should also account for time needed for revisions based on received feedback (Stein & Graham, 2013). Thus, crafting a blended course necessitates thoughtful and comprehensive planning to ensure its successful implementation and ongoing improvement.

***Cost and resource investment.*** While blended or e-learning approaches come with inherent advantages, they should not typically be viewed as cost-saving measures for an institution or organisation. This is due to the significant time and resources necessary for their implementation, which represent an ongoing commitment rather than a one-time investment. As courses transition from pilot phase to large-scale implementation, maintaining the required level of time investment can become challenging for many teachers. Moreover, potential cost savings or benefits might be counterbalanced by the need for continual investment in additional resources and support services (Littlejohn & Pegler, 2007). Indeed, alongside considering the benefits of blended or e-learning models, it's important to account for the challenges and ongoing commitments associated with these approaches.

***Need for redesign and reuse.*** To actualise the full potential of blended learning and ensure a significant enhancement in the learning experience, teachers need to adopt an approach that surpasses the notion of a superficial “digital facelift” (Stein & Graham, 2013, p. 9). This is where an intentional and comprehensive course redesign becomes pivotal. Such a redesign necessitates a deep-rooted and transformative change in pedagogical strategies and curriculum planning, with a central focus on leveraging digital technologies to foster an engaging and interactive learning environment (Stein & Graham, 2013). Simultaneously, resource optimisation is another vital aspect to consider in this context. Prudently designed learning resources, with a clear focus on their future reuse and repurposing, can offer substantial benefits. This not only facilitates rapid updates to course content in response to changing educational needs and advances, but also contributes significantly to cost efficiency by maximising the value derived from each educational resource (Littlejohn & Pegler, 2007). Therefore, a successful blended learning environment is underpinned by a thoughtful blend of transformative course redesign and resource optimisation strategies.

***Accessibility and inclusion.*** Assistive technologies can provide invaluable support to individuals with certain disabilities, facilitating their engagement with educational materials. However, it's also crucial to acknowledge that reliance on specific technologies may inadvertently intensify challenges associated with other disabilities. For instance, text-based discussions, while an effective tool for many, could inadvertently underscore difficulties for students with dyslexia who struggle with written communication. Similarly, the use of moving images, while enhancing the learning experience for many, might pose difficulties for visually impaired students (Littlejohn & Pegler, 2007). Therefore, it's essential to exercise discernment in the choice and implementation of technological tools in an educational setting, taking into account the diverse needs and challenges of all students .

***Lack of experience and confidence.*** The limited familiarity and confidence in utilising e-learning platforms can often lead to underutilised and undervalued blended learning strategies. Such limitations not only encompass practical skills associated with using digital tools, but also extend to the deficiency in digital learning skills, such as proficiency in searching and browsing online resources. Without these skills, students may find navigating through myriad internet sources an overwhelming task. This, in turn, may contribute to their overall lack of a positive experience and confidence in e-learning (Littlejohn & Pegler, 2007). Therefore, it becomes imperative to foster these skills among students, facilitating a more effective and seamless transition to blended learning environments. Having explored the underpinnings of blended learning and its implementation, this educational approach can now be explored within the context of the COVID-19 pandemic .

### **Blended Learning During The COVID-19 Pandemic**

The unprecedented challenges posed by the pandemic necessitated the rapid closure of schools, and disrupting traditional face-to-face teaching methods. According to (Meinck et

al., 2022), The COVID-19 pandemic had a heterogeneous impact on countries worldwide, leading to varied timelines and degrees of school closures. Examining specific cases, such as Ethiopia, India, and Slovenia, illustrates the varying timelines and durations of school closures experienced during the pandemic. These examples serve to highlight the heterogeneity of the impact across different countries and regions. To ensure continuity of education, schools around the world were compelled to swiftly respond by implementing alternative approaches to instruction. This transition required careful consideration of new teaching strategies, leveraging technology, and deploying additional resources to support remote learning. The ability to adapt and mobilise resources quickly became crucial in providing students with continued access to quality education amidst the uncertainties brought about by the pandemic (Crawford et al., 2020).

In Algeria, a study by Lounis (2020) described the initial situation and how the government responded. The first confirmed cases of the epidemic were reported on March 1st, involving two Algerian citizens who had traveled from France to the Blida department. Blida quickly became the focal point of the outbreak, experiencing a significant surge in cases and serving as a critical location in understanding the early spread and impact of the epidemic in Algeria. The government responded swiftly after detecting the initial cases, implementing a range of preventive measures to curb the spread of the virus and encourage social distancing. These measures included isolating repatriated individuals, suspending travel, closing educational institutions, mosques, and other public gathering places. Collective prayers were stopped, and both private and public transportation, including rail services, were temporarily suspended. It is worth noting that while the Blida department underwent a complete lockdown, other departments implemented partial containment measures.

Focusing on the education sector, Lamraoui (2021) mentioned that The Ministry of Higher Education made the push for the implementation and use of distance learning, but she

noted the lack of support and infrastructure necessary for such an implementation. In addition, she pointed out the lack of technological preparedness among teachers in Algeria, which made the transition to online teaching and assessment even more challenging. “In Algeria, teachers are not technologically well prepared. Most of them are not able to teach and conduct assessments online. Because corona virus took the world by surprise, teachers found themselves facing teaching and conducting assessments from their homes.” (Lamraoui, 2021, p. 6) The next section will provide an overview of the literature from different countries to establish context regarding the perceptions teachers and students have about blended learning.

### **Previous Studies on Perceptions and Experiences of Blended Learning**

In the pursuit of a comprehensive understanding of blended learning, it is imperative to consider literature from various global perspectives. This is primarily for three reasons. First, the perception and implementation of blended learning can be deeply influenced by cultural, social, and educational contexts, which differ significantly across countries. Examining literature from around the world allows us to gain insights into these diverse experiences and understandings. Second, an international perspective broadens the scope of the review and reduces the risk of bias inherent in focusing on a single region or culture. This makes our understanding of blended learning more nuanced and comprehensive. Finally, a global perspective can highlight successful strategies and common challenges, facilitating the exchange of best practices and shared solutions. Therefore, incorporating literature from various countries into this review is crucial to developing a holistic, in-depth, and balanced understanding of blended learning. In order to provide a solid frame of reference, literature from various countries around the world was reviewed to offer diverse perspectives, and identify commonalities.

A study by Aji et al. (2020) reveals that both teachers and students in Indonesia perceived blended learning as a beneficial approach during the pandemic. Teachers found it effective, promoting autonomous learning, and easy to use. However, they also faced challenges such as poor internet connection, time-consuming preparation, and a lack of experience. Students, on the other hand, appreciated the flexibility, motivation, interaction, and improvement of information and communications technology (ICT) skills offered by blended learning. Nevertheless, they also encountered issues with internet connectivity and difficulty understanding the materials. These perceptions and experiences were influenced by the sudden shift to online learning due to the pandemic, the availability and stability of internet connection, and the level of ICT skills and experience with online learning platforms. Despite these challenges, the study suggests that blended learning has potential advantages that can be harnessed during situations like a pandemic, provided that the necessary support and resources are available.

Ching (2020) conducted another study that offers a comprehensive examination of the experiences and perceptions of students during the transition to a blended learning model in Taiwan. The study specifically focuses on the impact of the COVID-19 pandemic, which necessitated a shift from traditional face-to-face learning. Students generally reported high satisfaction with the shift, appreciating aspects such as the time allotted for assignments, interesting lesson content, and the use of films for easier understanding. However, they also faced challenges such as an overwhelming amount of information and hesitation to ask questions. On the other hand, teachers faced difficulties in finding appropriate teaching materials, deciding on grading methods, and dealing with plagiarism. Despite these challenges, the overall perception of the blended learning experience was positive, suggesting its potential as an effective learning model in times of crisis. However, the study also



highlights the need for additional support for both students and teachers to address the challenges and enhance the effectiveness of blended learning.

In Saudi Arabia, Al-Samiri's (2021) findings demonstrate the positive impact of blended learning on university English as a foreign language (EFL) students, specifically in enhancing their listening and speaking skills. Students expressed favourable attitudes towards this approach, highlighting the flexibility it offers by allowing participation from any location and reducing commuting time. However, the study also revealed challenges associated with blended learning. Students reported increased preparation time for online lectures, which correlated with academic procrastination and the potential for feelings of exhaustion, burnout, and mental fatigue. Additionally, concerns regarding privacy and security were raised, suggesting the need to a shift towards more secure learning platforms. These insights emphasise the need to address challenges and optimise blended learning to ensure its effectiveness and safeguard students' privacy and well-being.

The study by Mahfouz and Salam (2021) found that students faced several obstacles during their online learning experience in Jordan, including lack of motivation, network coverage issues, and frequent internet interruptions. These challenges were particularly pronounced for students living in remote areas. Despite these difficulties, the study also found that students who had access to e-learning platforms such as Zoom, Microsoft Teams, and Moodle developed self-study skills and a sense of community. However, the students' socio-economic status and the availability of laptops and internet access significantly influenced their online learning experience. Students who possessed laptops and had more access to internet bundles and routers had more positive perceptions of e-learning than students who used mobile phones for the same purpose. The study concludes by recommending professional training for students on how to efficiently use e-learning platforms and the incorporation of blended learning in the Jordanian educational system.

Nsengimana et al. (2021) found that the shift to blended learning during the COVID-19 pandemic presented both challenges and opportunities for students in Rwanda. The authors noted that students faced difficulties such as limited access to electricity and the internet, particularly in remote areas, which affected their ability to participate in online learning. The lack of practical works and simulations, crucial for understanding scientific concepts, was another significant challenge. Furthermore, the study found that the quality of some online resources was unclear, causing difficulties in understanding the material. However, the authors also highlighted that blended learning led to the development of skills in the use of technology, improved communication, listening, critical thinking, and research skills among students. The study also found that teachers needed to adapt to this new mode of teaching and learning, suggesting that they needed to be equipped with appropriate skills for effective and productive interactions with students. The authors concluded that while blended learning has its advantages, it also presents significant challenges, particularly for mathematics and science students.

According to a study by Bordoloi et al. (2021), it was revealed that, in India, a notable resistance among teachers and students in traditional educational institutions towards incorporating online learning into their regular practices. However, the outbreak of the COVID-19 pandemic necessitated the adoption of technology to ensure uninterrupted content delivery. Participants acknowledged the benefits of accessing live online classes during lockdown, as it facilitated the development of ICT-based knowledge and skills. Moreover, the use of mobile apps emerged as a cost-effective and accessible solution, gaining wide acceptance among respondents. Online and blended learning provided opportunities for teachers and students to enhance their technology skills and foster independence. Consequently, the pandemic-induced shift towards online and blended learning has significantly increased the utilisation of ICT-based technologies in educational settings.

Mounjid et al. (2021) conducted a comprehensive analysis of the perceptions and experiences of teachers in Morocco regarding blended learning during the COVID-19 pandemic. The study revealed that the sudden transition from traditional face-to-face classes to online learning posed numerous challenges. Teachers, comprising of a significant portion of those who shifted to online teaching, encountered technological, training, and socio-economic barriers. The size of the class emerged as a major hurdle, impacting teaching effectiveness, and teachers experienced an increased workload with each new student enrolment. Additionally, a considerable number of teachers struggled with assessing student progress in the online setting. These findings underscore the complexities and obstacles associated with implementing blended learning during crisis situations and emphasise the importance of comprehensive support systems to facilitate effective online teaching and learning.

Based on the findings of Adetoye (2021), students had varied perceptions and experiences with blended learning in Sweden, influenced by several factors. Before the pandemic, students were familiar with technology but used it primarily as a supplementary tool for learning. The sudden shift to fully online learning due to the pandemic was a significant change for them. They expressed a need for additional collaboration tools to facilitate better online learning, suggesting that the tools provided by the school were not enough to fully replicate the in-person learning experience. Despite some technical issues, students found the transition to digital learning mostly seamless. They acknowledged the effectiveness of technology for learning, examinations, and workshops, but also noted some minor challenges. Looking towards the future, students had mixed feelings about the continued use of technology in education. They felt isolated and disconnected from the class discussions, struggled with motivation, and missed the social interactions of traditional learning. However, they commended the teachers for their efforts in adapting to online

teaching. Overall, students expressed a preference for blended learning. They found technology convenient and effective for immediate clarification and online searches, but also valued in-class learning for its social interactions and the ability to participate in active, lively, and intellectual discussions.

Wu and Luo (2022) conducted a study in China that examined the perceptions of students towards blended learning, by combining traditional classroom teaching with Massive Open Online Courses (MOOCs). The findings revealed that overall, participants held positive attitudes towards blended learning. Students expressed preferences for this approach, highlighting benefits such as increased flexibility, deeper understanding, and a richer learning experience. However, some students expressed concerns related to task overload and a perceived lack of autonomy. Teachers also recognised the advantages of blended learning but acknowledged an increase in their workload. The study emphasises the importance of addressing challenges and leveraging the flexibility and interaction provided by blended learning to further enhance its effectiveness. Having formed a frame of reference regarding blended learning, its implementation, and its perceptions, the next section will discuss the gaps found in the literature, particularly in the Algerian context.

### **Discussing Gaps in The Literature**

It is crucial to highlight and discuss gaps in the literature regarding blended learning, in the Algerian context, for several reasons. Firstly, identifying research gaps allows us to understand the existing knowledge landscape and the extent to which the topic has been explored in Algeria. By recognising these gaps, we can determine the areas where further investigation is needed. Secondly, discussing research gaps helps to establish the significance and relevance of our own study. By showcasing the limitations or unanswered questions in the literature, we emphasise the importance of filling these gaps to advance scholarly

understanding and practice in the field of blended learning in Algerian universities. Lastly, highlighting research gaps allows us to identify opportunities for innovation and improvement in the implementation of blended learning.

**Sample size.** The literature on blended learning in Algeria exhibits a notable gap in terms of sample size, as reflected in studies conducted by various researchers. For instance, Bourim & Bezetoute (2021), Boukrika & Bouhelassa (2021), and Anseur & Achiche (2021) conducted studies with relatively small sample sizes of 31, 35, and 19 students, respectively. Additionally, Chohra (2022) explored the perceptions of 16 students and 5 teachers, while Chennoufi (2022) examined the experiences of 20 students and 5 teachers. Similarly, Ferdjallah (2022) investigated the perspectives of 40 students and 6 teachers, and Mekranter (2022) focused on a sample size of 51 students and 5 teachers. While these studies introduce valuable insights, it is important to note that a limited sample size may not fully capture the diversity and nuances of the Algerian educational landscape. Conducting research with larger and more diverse sample sizes would contribute to a more comprehensive understanding of the implementation and effectiveness of blended learning in Algerian universities. Such efforts would enhance the generalisability and applicability of findings, providing a stronger evidence base for guiding educational practices and policy making in the Algerian context.

**Population diversity.** Current literature on blended learning in Algeria, as demonstrated by multiple studies, presents a significant disparity in terms of population diversity. For example, research by Bourim & Bezetoute (2021), Boukrika & Bouhelassa (2021), and Anseur & Achiche (2021) have centered on the Universities of Bejaia, Jijel, and Oum El Bouaghi, respectively. Likewise, studies conducted by Chohra (2022), Chennoufi (2022), and Ferdjallah (2022) only investigated the University of Biskra, while Mekranter (2022) restricted their study to the University of Ain Temouchent. While these investigations provide valuable insight into blended learning within these institutions, they may not

completely represent the diverse experiences across the broader Algerian HE system. To gain a comprehensive understanding of blended learning challenges, opportunities, and best practices in Algeria, it's crucial to consider a wider range of universities and regions.

**Limited focus.** The Algerian literature on blended learning has extensively examined various aspects related to this learning approach, yet there seems to be a tendency towards exploring specific elements or outcomes, leaving a gap for more focused exploration on blended learning itself. For example, Bourim & Bezetoute's (2021) study on Algerian EFL students' perceptions towards e-learning platforms offers important insights into students' attitudes. Likewise, the work of Boukrika & Bouhelassa (2021) and Anseur & Achiche (2021) on the effects of blended learning on speaking skills and test performance respectively, contributes valuable understanding about the impacts of blended learning. Chohra's (2022) investigation into the connection between students' introversion characteristics and online EFL teaching, and Chennoufi's (2022) research on the relationship between blended learning implementation and EFL student's autonomy, similarly extend our knowledge on specific components of blended learning. However, these studies, while invaluable, do not entirely center on blended learning as an approach, indicating a possible area for this research to delve into the core characteristics and dynamics of blended learning within the Algerian context.

In response to the identified gaps in the Algerian literature on blended learning, two central research questions arise:

1. What is the perception of teachers and students regarding blended learning?
2. How was blended learning implemented in Algeria during the COVID-19 pandemic?

These questions are significant and relevant as they directly address the core aspects of blended learning, its implementation, and the inherent advantages and disadvantages as perceived by the key stakeholders, teachers and students. This approach directly confronts the

limited focus gap by concentrating on blended learning as an educational strategy, rather than on its specific outcomes or related areas.

## **Conclusion**

The potential contributions of this study to the existing literature are manifold. By directly addressing the identified gaps, it will enrich the understanding of blended learning implementation and reception in Algeria. The broadened scope will contribute a more representative and inclusive snapshot of the Algerian HE landscape. Additionally, the insights gained from this study can serve as valuable guidance for developing effective policies and strategies for blended learning implementation, not just within the Algerian context, but potentially in similar educational environments globally.

The methodology of this research, detailed in the next chapter, will also aim to address the sample size and population diversity gaps. It will do so by including a larger and more diverse group of participants from various Algerian universities, thus ensuring a more comprehensive understanding of blended learning practices and perceptions within the Algerian HE context.

## **Methodology**

### **Introduction**

This chapter focuses on the investigation of the implementation of blended learning in Algerian universities during and after the COVID-19 Pandemic. Building upon the understandings gained from the literature review, which justifies the chosen methodology, this chapter outlines the research methodology employed to examine the perceptions of teachers and students regarding blended learning. The primary aim of this study is to gain valuable insights into the perceptions and implementations of blended learning in Algerian HE, providing crucial information to enhance future implementation of blended learning practices.

To achieve this aim, two primary research questions guide the investigation:

1. What are the perceptions of teachers and students regarding blended learning?
2. How was blended learning implemented in Algerian Universities during the COVID-19 pandemic?

By exploring the perceptions of teachers and students, it provides valuable information to enhance the future implementation of blended learning practices. The methodology employed ensures reliable and valid findings through systematic data collection, analysis, and interpretation. This chapter outlines the research design, data collection methods, analysis techniques, limitations, and ethical considerations, allowing readers to evaluate the rigor and credibility of the findings. Investigating blended learning in the Algerian university context holds relevance for policy decisions, instructional practices, and future research in the field.



## Research Paradigm

The research paradigm adopted for this study is interpretivism. Interpretivism is a philosophical standpoint that emphasizes the importance of understanding social phenomena through the subjective meanings and interpretations that individuals attach to them (Crotty, 1998). In the context of this study, interpretivism aligns with the objective of examining and interpreting the diverse viewpoints, experiences, and expectations of participants. By embracing interpretivism, this study acknowledges that individuals' perceptions and experiences of blended learning are socially constructed and influenced by their unique contexts, cultural backgrounds, and personal beliefs. It recognizes the significance of uncovering the underlying meanings and interpretations that participants attribute to their experiences with blended learning (Creswell J & Poth C, 2018). This philosophical standpoint allows for a comprehensive exploration of the complexities and nuances involved in the implementation and effectiveness of blended learning in Algerian universities. Implications of adopting an interpretivist perspective are reflected in the research design and methods chosen for this study.

Qualitative methods, such as interviews and questionnaires, align with interpretivism as they provide a platform for participants to express their perspectives, share their experiences, and contribute their subjective understandings of blended learning (Creswell J & Poth C, 2018). These methods facilitate an in-depth exploration of participants' perspectives, capturing a wide range of interpretations, beliefs, and expectations regarding blended learning in the context of Algerian HE. Furthermore, within interpretivism, there is an acknowledgement of the active participation of individuals in the research process. The active presence and engagement of the individual conducting data collection and analysis are highly regarded, recognizing the significant impact their interpretations and insights have on shaping the comprehension of the research phenomenon. It is crucial for the individual to exhibit

reflexivity, self-awareness, and openness to multiple perspectives, as these qualities contribute to the integrity and validity of the study (Creswell J & Poth C, 2018). The next section discusses the research design employed in this study.

### **Research Design**

The research design chosen for this study is qualitative research, which aims to understand and interpret social phenomena through the exploration of participants' perspectives, experiences, and meanings (Creswell, J W, 2014). Qualitative research is the most appropriate fit for the exploration of teachers' and students' perspectives on blended learning in Algerian universities, examining their experiences and insights during and after the COVID-19 pandemic. This design allows for an in-depth exploration of the research topic, capturing the richness and complexity of participants' viewpoints (Creswell, J. W, 2013). It is well-suited for exploring the subjective nature of perceptions and experiences related to blended learning, considering its multifaceted nature influenced by individual perspectives, institutional contexts, and cultural factors. The flexibility of qualitative research enables adaptation of the research design during data collection and analysis, accommodating new insights that may emerge. By emphasizing the importance of context and the social construction of knowledge, qualitative research can capture the unique factors shaping participants' perspectives, providing valuable localized revelations for enhancing educational practices and policies in Algerian universities.

### **Sampling Strategy**

The sampling strategy in this study is designed to address the sample size and population diversity gaps identified in the literature review. The target population includes university teachers and Master-One students in the EFL field who have encountered blended

learning during and after the COVID-19 pandemic. To ensure an adequate sample size, participants were selected from three Algerian universities: Mohamed Khider University of Biskra (UMKB), Mohamed Bachir El Ibrahimi University of Bordj Bou Arreridj (UMBI), and Mohamed Lamine Debaghine University of Setif (UMLD). The sampling frame includes nine EFL teachers and 175 Master-One students from all three universities. By including participants from multiple universities, this sampling strategy helps address the "Sample Size" gap by ensuring a sufficiently diverse and representative sample. The inclusion of participants from different institutions increases the generalizability of the findings and allows for a broader understanding of the implementation of blended learning in Algerian HE. Additionally, the sample comprises individuals who possess knowledge and experience with blended learning, having encountered the abrupt transition in the teaching and learning approach due to the pandemic.

The sampling method employed in this study is purposeful or purposive sampling, which is a type of non-probability sampling technique. Participants were selected based on specific criteria relevant to the research objectives. In this case, the target population consisted of students and teachers who have encountered blended learning during the COVID-19 pandemic. These individuals were chosen due to their firsthand experiences with both traditional and blended learning approaches, allowing them to provide informed opinions and valuable feedback. To ensure clarity and transparency in the sampling process, the selection criteria included students and teachers who studied or taught during the COVID-19 pandemic, specifically seeking individuals who have experienced both types of learning. This deliberate selection helps gather perceptions from those who have navigated the challenges and opportunities presented by the sudden shift to blended learning.

**Participant recruitment.** In order to involve EFL teachers from the specified universities in the research, a letter of invitation accompanied by a consent form was sent to

them via email (see Appendix A). The letter explained the research purpose and the role of participants, while the consent form served as a comprehensive document outlining the research objectives, providing detailed study information, and including the researcher's contact details for any further inquiries or to express interest in participating in the qualitative interviews. Respecting ethical considerations, transparency, and the rights and autonomy of the individuals involved, informed consent was sought from the EFL teachers. This process ensured that participants were fully informed about the research, its objectives, and the expected involvement. The consent form allowed them to voluntarily agree to participate while providing them the option to withdraw at any stage without any consequences. For students, the process was slightly different. They were directly approached in their respective educational settings after obtaining permission from their tutor and administration. This ensured that their participation was authorized and aligned with the protocols and guidelines of the educational institutions.

The selection process for study participants involved purposeful sampling. EFL teachers and Master-One students were approached and selected based on specific criteria that aligned with the research objectives. The study aimed to include individuals who had experiences with blended learning during the COVID-19 pandemic in Algerian universities and could provide valuable insights. The chosen purposeful sampling strategy is appropriate for this research for several reasons. Firstly, purposeful sampling aligns with the qualitative nature of the study, as it enables the researcher to gather in-depth and detailed information from participants who possess the desired characteristics and experiences (Creswell & Poth, 2018). It allows for a comprehensive exploration of the research topic, capturing a range of viewpoints and experiences related to blended learning in Algerian universities.

Secondly, purposeful sampling is practical and feasible within the scope and resources of the study. By specifically targeting EFL teachers and Master-One students who have

encountered blended learning, the approach ensures the inclusion of participants with firsthand experience and engagement. However, it is important to acknowledge that purposeful sampling may introduce certain limitations. The findings should be interpreted with caution and cannot be generalized to the entire population of EFL teachers and students in Algerian universities. Additionally, potential biases may exist due to the selective nature of purposeful sampling. These limitations will be addressed and discussed in later sections of the research.

The following section describes the methods used to gather insights from teachers and students regarding blended learning implementations in Algerian universities throughout and after the pandemic. Semi-structured interviews and questionnaires were employed to ensure data quality and participant engagement.

### **Data Collection**

The research employed interviews with teachers and questionnaires with Master-One students as data collection methods to gather perceptions regarding blended learning in Algerian universities during and after the COVID-19 pandemic, aligning with the research objectives and the nature of the study. Interviews were conducted with teachers to delve into their experiences, perspectives, and perceptions of blended learning. Interviews offer the advantage of allowing for in-depth exploration and understanding of participants' viewpoints, providing rich qualitative data (Creswell & Poth, 2018). Through open-ended questions and follow-up inquiries, interviews allow for a nuanced understanding of the complexities and distinctions associated with blended learning implementation. The interactive nature of interviews also enables to probe deeper into specific areas of interest, ensuring comprehensive data collection. Questionnaires, on the other hand, were utilized with Master-One students to obtain a broader understanding of their perceptions and experiences related to

blended learning. Questionnaires provide a structured approach for collecting quantitative data, allowing for the examination of patterns, trends, and generalizable acumens across a larger sample size (Creswell & Poth, 2018). By utilizing standardized scales and closed-ended questions, questionnaires enable efficient data collection and facilitate statistical analysis, enhancing the generalizability of findings to a larger population.

The combination of interviews and questionnaires as data collection methods ensures a comprehensive and well-rounded approach to capturing the perceptions and experiences of both teachers and students regarding blended learning. The qualitative insights gained from interviews complement the quantitative data obtained through questionnaires, providing a deeper understanding of the nuances and individual perspectives within the broader context of blended learning implementation in Algerian universities. With the participants' consent, certain interviews were audio-recorded to facilitate accurate and thorough data collection. Recording the interviews enables a focus on the conversation content and active engagement in the interview process. However, it is essential to handle and store the recordings securely to ensure the confidentiality and privacy of the participants. Nonetheless, it is worth noting that some teachers opted to provide their answers in written form, either on paper or via email, which will be further discussed as a limitation in subsequent sections.

**Interviews.** The interviews with teachers were conducted in their own settings on a one-to-one basis. According to Creswell (2014), this approach ensures that the participants are less likely to be distracted or disrupted by external factors, allowing them to concentrate more on the topic of discussion. By conducting interviews in the participants' own settings, the researcher can gain a better understanding of their teaching context and perceptions, which can provide valuable insights into the research topic. During the interviews, a semi-structured interview guide was employed as the tool. The interview guide comprised 14 open-ended questions specifically designed to explore the experiences, challenges, and perceptions

of teachers regarding blended learning in Algerian universities. The construction of the interview guide was informed by the research objectives (see Appendix B).

**Questionnaire.** The questionnaire was designed to gather information from students about their experiences and perceptions of blended learning in Algerian universities. It consisted of 14 questions; a combination of Closed-ended questions (Yes/ No questions and Multiple-choice questions) in addition to a justification space, Likert scale statement questions (agreement questions), Follow-up questions, and an Open-ended question.

- The Closed-ended questions limits the response options to the provided list and allows participants to choose multiple options if applicable (Jovancic, 2021).
- The Likert scale is a rating scale used to measure respondents' agreement or disagreement with a statement. It provides participants with response options to reflect their opinions, allowing for a quantifiable assessment of their perceptions. Moreover, the Likert scale captures qualitative insights by offering a range of responses and allowing participants to express nuanced views (Jovancic, 2021).
- The inclusion of a justification space in closed-ended questions encourages participants to expand on their previous responses and provide specific details about the factors that influenced their decision (Jovancic, 2021).
- The open-ended question allows respondents to provide more detailed, narrative answers, contributing qualitative data (Jovancic, 2021).

This combination of questions provides a deeper understanding of participants' thoughts, motivations, and reasoning behind their initial response providing richer qualitative response and a comprehensive understanding of the research topic (see Appendix C).

The questionnaire was administered in-person to the students. It is essential to ensure that each participant has the opportunity to answer the questionnaire in a confidential and comfortable setting. The sample selection was carefully considered to ensure the results are representative of the population and relevant to the research objectives. Before conducting the main study, a pilot study was directed to test the research instruments and procedures. This next section outlines the purpose of the pilot study, the selection of participants, and the process of refining the data collection tools based on the feedback and insights gained. The findings from the pilot study informed adjustments and improvements to ensure the validity and reliability of the data collection process for the main study.

**Pilot study.** Prior to data collection, a pilot study was conducted to test and refine the data collection instruments. According to Denscombe (2010), a pilot study helps determine the time required for participants to complete the questionnaire and allows for any necessary revisions to reduce the time and improve question clarity. The pilot study involved selecting a sample of participants who closely resemble the target group, such as colleagues, teachers, or friends. They were given the questionnaire and participated in the interviews, and the results were analyzed to seek feedback from participants regarding the clarity and ease of completing the questionnaire or participating in the interviews. Based on the feedback and analysis, some necessary changes were made to improve the instruments and ensure their effectiveness.

The questionnaire has undergone several modifications to enhance its clarity and usability. Firstly, the questionnaire information sheet has been condensed to a concise summary of fewer than 100 words, providing participants with a brief overview of the questionnaire's purpose and expectations. Additionally, most of the initial Likert questions have been redesigned to have clear yes or no answers, simplifying the response process. For the remaining Likert scale questions, similar response options have been implemented to



ensure consistency and ease of understanding. To gather additional data, a "Justify" space has been included after yes/no questions, enabling participants to provide further explanation or context. Instructions for answering the questions have been added to reduce confusion and improve response accuracy. Multiple-choice questions now include an "Other" space, allowing participants to provide answers that were not provided as options. To provide extra clarity, examples have been included in brackets for certain answers that may require additional explanation. Furthermore, the initial sections separating the questions have been removed, resulting in a more streamlined questionnaire. Lastly, each question has been assigned a number for easy reference and organization.

In terms of interview modifications, background questions have been added to gather relevant information about the participants, enabling a better understanding of their perspectives and experiences. A consent form has been created, outlining the conditions of participation and explicitly requesting each interviewee's consent to the provided terms. Similar to the questionnaire, the initial sections separating questions have been removed for a more fluid interview experience. Additionally, numbering has been added to each question to facilitate referencing and organization of the interview data. These modifications aim to improve the interview process and ensure that the collected data is comprehensive and well-structured. This coming section outlines the data analysis process.

## **Data Analysis**

In this research, a thorough analysis of the collected data was conducted to gain meaningful insights. Qualitative data analysis was performed using the well-established approach of thematic analysis, following the guidelines provided by Braun and Clarke (2019). Thematic analysis allowed for the systematic identification and exploration of patterns, themes, and relationships within the qualitative data obtained from interviews. Additionally,

quantitative data gathered from the questionnaire responses were also extracted and incorporated into the analysis. By combining these different data sources, a comprehensive understanding of the research topic was achieved, leading to valuable findings and conclusions.

**Transcription of interviews.** Interview transcription involves covering spoken interview data into a written format (Have, 1999). The steps involved in the transcription process; according to Have (1999), are as follows:

1. Preparation. Gathering the necessary equipment and materials for transcription, including a reliable audio recording of the interview, headphones, a computer with transcription software, and a word processing program (e.g.; Microsoft Office Word).
2. Familiarization. Listening to the audio recording of the interview multiple times to become familiar with the speakers' voices, accents, and any background noises or interruptions. This step helps identify and understand the content more accurately.
3. Transcription. Starting the interview transcription by typing the spoken words verbatim into a word processing document (e.g.; Microsoft Office Word). Using timestamps to mark specific points in the interview for reference.
4. Formatting. Applying consistent formatting conventions to make the transcript easy to read and understand. Using paragraph breaks to separate speakers' turns, and identifying each speaker using initials or speaker labels. Punctuating the transcript according to standard writing conventions.
5. Accuracy and Proofreading. The transcripts were then carefully reviewed for accuracy, to ensure that all spoken words are transcribed correctly. Any errors,

spelling mistakes, or inconsistencies that were made by the interviewee (teachers) were left alone to maintain the integrity of the interview data during.

6. **Adjustments.** Some necessary edits were made to improve readability and clarity of the transcripts. This involves cleaning up grammar, removing unnecessary verbal fillers (e.g., "um," "uh"), correcting any typos or formatting errors, and translating some other spoken languages during the interviews (e.g.; Arabic and French).
7. **Anonymisation.** To safeguard the privacy and confidentiality of the participants, any identifying information or personal details such as names, specific modules taught, or affiliated universities were removed or anonymised. This measure was taken to ensure that participants' identities remain protected and their privacy is maintained throughout the study. To ensure anonymity and confidentiality, each interviewee was assigned a unique name code (e.g., Teacher 1, Teacher 2, Teacher 3, etc.). This approach allows for easy identification and reference to the participants during the analysis and reporting of the interview data while maintaining their privacy.
8. **Transcript Quality Assurance.** To ensure the accuracy, organization, and adherence to transcription guidelines, a thorough review of the interview transcripts was conducted. This final review aimed to verify that the transcripts faithfully captured the content of the interviews and met any specific transcription requirements (Have, 1999).

To ensure convenience and easy accessibility, all interview transcripts were consolidated into a single document. This consolidation allows for a more efficient and comprehensive review of the interview data. By having all the transcripts in one place, we can easily navigate

through the document, compare responses, and identify common themes or patterns across interviews. This approach streamlines the data analysis process and promotes a thorough examination of the collected qualitative data, ultimately contributing to more robust findings and insights. In this study, the transcription process was undertaken to convert audio recordings into written text. It is important to acknowledge that transcription can be time-consuming, and its speed may be influenced by factors such as audio quality, speaker clarity, and content complexity (see “Research Limitations” section). To streamline the process, transcription software with automated speech recognition (ASR) capabilities was utilized (e.g., Otter.ai) perfected by reviewing and editing to ensure the accuracy and quality of the transcriptions.

After transcribing the interviews and collecting questionnaire responses, the process of thematic analysis was undertaken, following several steps as Maguire and Delahunt (2017) outlined:

1. Familiarization with the data. The interview transcripts and questionnaire responses were carefully read and familiarized to gain an overall understanding of the data and identify initial codes or patterns relevant to the research objectives.
2. Coding. The data was systematically coded by identifying and labelling meaningful units of information. This coding process involved both deductive and inductive approaches. Deductive coding utilized predefined codes based on the research questions, while inductive coding allowed for the emergence of new codes based on the data itself. The coding process was iterative, with codes refined and revised as new patterns and themes emerged.
3. Categorization and theme development. Once the initial coding was completed, similar codes were grouped together and assigned similar colours to form

categories. These categories were further analysed to identify overarching themes that captured the main ideas, patterns, and interpretations within the data. The development of themes was based on their relevance to the research questions and their frequency and significance within the data set.

4. Review and refinement. The identified themes were reviewed and refined by revisiting the data to ensure their coherence and consistency. The relationships between themes were critically examined, counterexamples or invalidating evidence were sought, and the themes were refined accordingly.
5. Interpretation and reporting. The final step involved interpreting the themes in relation to the research questions and objectives. This included conducting an in-depth analysis of the themes, drawing connections, and providing explanations supported by evidence from the data. The findings were reported in a clear and coherent manner, with relevant quotations or examples from the participants' responses (Maguire & Delahunt, 2017).

**Visual representations of data.** To enhance the presentation of the qualitative data analysis, visual representations such as pie charts and bar graphs were utilized. These visual representations served to illustrate the distribution of themes and/or categories, providing a visual summary of the findings. Pie charts were used to depict the proportion of responses, and bar graphs were used to display the frequency or comparison of different responses and/or categories within the data. It is important to note that “while pie charts and bar graphs are typically associated with quantitative data, they can still be used effectively for qualitative data to enhance the presentation and understanding of the findings” (Bryman, A, 2016).

***Pie charts.*** Denscombe (2010) explains that the presentation of data in pie charts involves depicting information as sections of a whole circle. According to Study Smarter (n.d.), when presenting data on a pie chart, it is necessary to convert the data into percentages. The entire

pie chart should be regarded as 100% since the whole pie remains intact. Each of the categories should be converted into percentages, which add up to a total of 100%. In order to obtain the percentage of each category, the value of each category should be divided by the total number of participants (or values). The following example uses responses from question 1 in the questionnaire as an example:

- **Yes** = 167
- **No** = 8

So, to obtain the percentage of each category (PC):

$$PC = \left( \frac{\text{The Value of Each Category}}{\text{The Total Number of Participants}} \right) \times 100$$

- $(101/175) \times 100 = \mathbf{95.3\% \text{ Yes}}$
- $(74/175) \times 100 = \mathbf{4.7\% \text{ No}}$

**Bar graph.** According to Denscombe (2010), bar graphs/charts are a widely utilized method for visually presenting frequencies in small-scale research reports. They are particularly suitable for nominal data and discrete data. The fundamental concept of bar charts involves equal-width bars, where the height of each bar corresponds to the frequency or quantity associated with a distinct category. It is customary to maintain a gap between adjacent bars in a bar chart. Study Smarter (n.d.), explained; In a bar graph, the x-axis represents the categories or groups being compared, while the y-axis represents the numerical variable indicating the frequency or count of responses within each category. The height of each bar corresponds to the value or quantity associated with the category, making it easy to compare the relative magnitudes of different categories. Bar graphs are a straightforward and efficient way to visually depict categorical data, as they provide a clear visual representation of the distribution or frequency of responses across categories. This example shows question 11 from the questionnaire. The responses were as follows:

- Quizzes and tests: 116
- Group projects: 96
- Writing assignments: 92
- Online discussions: 45
- Self-assessments: 45

Based on these numbers, a bar graph is created. Looking at the data, it is clear that the bar for Quizzes and tests will be the tallest one, then Group projects, Writing assignments, and so on. According to Denscombe (2010), it is recommended to limit the number of categories used in a bar chart. The impact of the chart becomes more pronounced when there are fewer categories or bars. When there are more than ten categories, the bar chart can become overcrowded and difficult to interpret, leading to confusion for the reader. Therefore, it is advisable to maintain a manageable number of categories to ensure clarity and readability in the bar chart. The next section delves into the crucial aspects of validity and reliability in this study. It discusses the measures taken to ensure the trustworthiness of the data and the credibility of the findings.

**Validity and reliability.** In order to reinforce the credibility of qualitative research, several strategies were adopted as recommended by Poduthase (2015). First, triangulation was employed by utilizing various data sources and methods to gather diverse perspectives, thus increasing the validity of the findings. Second, reflexivity was maintained by the researchers, who continually scrutinized their own biases and presumptions throughout the study. Clear transparency about the researchers' influence on the study aids in reducing potential bias. Lastly, rich and detailed description was used to provide intricate details of the research context, participants, and data collection and analysis procedures. This detailed description allows readers to thoroughly understand the study's context and evaluate the

applicability of the findings to different settings. These strategies together ensure the validity and reliability of the research, making the conclusions more trustworthy and rooted in the data. In the subsequent section, ethical considerations were addressed in compliance with ethical guidelines.

### **Ethical Considerations**

In this study on the implementation of blended learning in Algerian universities, several ethical considerations were addressed to ensure the protection and well-being of the participants. The following ethical considerations were taken into account:

- **Informed Consent:** Informed consent was obtained from all participants, including teachers and students, prior to their participation in the study. Participants were provided with detailed information about the study's purpose, procedures, potential risks and benefits, and their right to withdraw at any time. Informed consent forms were used, and participants were given sufficient time to review the information and ask questions before providing their consent (American Psychological Association, 2017).
- **Confidentiality:** Participant confidentiality was strictly maintained throughout the study. Anonymity was ensured by using pseudonyms or numerical codes instead of real names in data analysis and reporting. Identifying information was removed or altered to prevent personal identification. The data collected, including interviews and questionnaire responses, were securely stored and accessible only to the research team.
- **Protection of Participants:** Potential risks associated with discussing experiences with blended learning were considered. Participants were assured of the voluntary nature of their participation and their right to withdraw at any



time without consequences. They were also given the option to skip questions or topics they felt uncomfortable discussing. Participants were provided with support resources for any required assistance or additional information regarding the study or the discussed topic.

- **Researcher's Responsibilities:** The researcher maintained objectivity, respected participants' autonomy, and minimized potential biases throughout the study. Reflection on personal biases and assumptions was conducted to prevent undue influence on data collection and analysis.
- **Administration Permission:** The study obtained permission from the relevant administration or authorities to access the campus and conduct research activities. This step ensured compliance with the necessary protocols and regulations for conducting the study, including data collection and obtaining participants' consent (see Appendix D).

To address ethical considerations, established ethical guidelines and standards in social science research, such as those outlined by the American Psychological Association (2017), were followed.

By ensuring informed consent, maintaining confidentiality, protecting participants' well-being, and upholding ethical responsibilities, the study aimed to conduct research in an ethical and responsible manner while collecting valuable data on the implementation of blended learning in Algerian universities. In summary, the study prioritized informed consent, confidentiality, participant protection, and researcher responsibilities. These ethical considerations were addressed to protect participants and conduct the research in an ethical manner. It is important to acknowledge several limitations that may have influenced the findings and generalizability of the research. These limitations are discussed in the following section.

## Research Limitations

While every effort has been made to design a robust research methodology, there are some potential limitations and biases that should be acknowledged in this study on the implementation of blended learning in Algerian universities.

**Time constraints.** One of the key limitations of this study was the restricted time frame allocated for data collection. The limited time available may have constrained the amount of data that could be collected, potentially impacting the depth and comprehensiveness of the findings. Additionally, the inclusion of three universities aimed to cover a range of perspectives and enhance the representativeness of the results. However, conducting data collection within a short period, particularly nearing the holiday and Ramadan, may have imposed time constraints and potentially influenced the participation and availability of participants. It is important to acknowledge that while efforts were made to gather diverse perspectives, the experiences and perceptions of teachers and students in these specific universities may not fully capture the diversity present across all Algerian HE institutions.

**Limited access to literature.** The limited access to literature affected the comprehensiveness of the review and synthesis of existing knowledge. Factors such as time constraints, restricted library resources, and limited access to academic databases hindered the retrieval of all relevant scholarly articles and studies on blended learning in Algerian universities during and after the COVID-19 pandemic. As a result, the study may not have captured the entirety of the current knowledge and research findings in this context, potentially leading to a narrower scope of information and a potential bias in the interpretation of the findings. The omission of certain studies and perspectives from the literature could have impacted the depth and comprehensiveness of the discussion. Moreover, the limited access to literature hindered the ability to compare the findings with existing

studies, affecting the generalizability and external validity of the research. Efforts were made to overcome this limitation by exploring alternative sources, such as open-access journals and online repositories, as well as publications from local conferences or institutions. However, it is important to acknowledge that the limited access to literature may have restricted the breadth and depth of the study.

**Generalisability.** It is important to acknowledge that the sample size used in this study may not fully represent the entire population of teachers and students in Algerian universities. Therefore, the findings of the study should be interpreted with caution and may not be generalizable to the broader population. The inclusion of a limited number of universities also restricts the generalizability of the findings, as the experiences and perceptions of teachers and students in these specific universities may not fully capture the diversity present across all Algerian HE institutions. However, efforts were made to enhance the representativeness of the sample by considering factors such as geographical location, age, gender, and other relevant characteristics. By incorporating diversity within the selected universities, the study aimed to capture a range of perspectives. It is important to note that while the findings may provide valuable insights within the context of the selected universities, they may not be applicable to all Algerian universities.

**Geographic dispersion.** One limitation of this study was the geographic dispersion observed, as data collection took place independently in the three locations due to each one of the researchers residing in different states. The resulting geographical separation may have contributed to variations in data collection methodologies, interpretations, and the possibility of inconsistencies in the findings. The diverse locations and affiliations could have influenced our access to participants, contextual understanding of the research, and interpretation of the collected data. Consequently, this dispersion may have introduced biases or inconsistencies, as our perspectives and backgrounds could have impacted the process of data collection and

analysis. It is crucial to acknowledge this limitation, as it has the potential to affect the generalizability and reliability of the study's findings.

**Data collection limitations.** This study faced several limitations. Its cross-sectional design only captured data at one moment, hindering the ability to observe changes over time. The risk of response bias also existed, as participant answers might have been influenced by a desire for social acceptance, potentially affecting data validity. Furthermore, the heavy reliance on qualitative data could introduce bias towards subjective interpretations and limit the generalizability of the findings. Time constraints and participant engagement were also issues as qualitative questionnaires require significant time and thought, which may affect response rates. Moreover, the data analysis process was complex and time-intensive, possibly posing challenges with large volumes of data. Lastly, factors such as participant apathy or lack of motivation could impact response rates, affecting the representativeness of the findings. Achieving high response rates can be challenging, especially in remote studies or during periods of limited participant availability.

**Bias.** This study utilized a non-probability purposeful sampling approach where participants were selected based on subjective criteria, potentially introducing bias and variability. How these criteria were interpreted could affect decisions made and ultimately influence the representativeness and generalizability of the results. By openly acknowledging these limitations, we recognize their potential impact on the research findings. This conscious recognition enhances the study's overall consistency and integrity. It enables readers to critically appraise the results and understand the context within which the study was conducted.

## **Conclusion**

The methodology of this study, which investigates blended learning in Algerian universities, is built on a research design, data collection processes, and strict ethical guidelines. We employed qualitative research techniques, utilizing interviews and questionnaires to gain comprehensive insights from teachers and students across three universities. We've sought to enhance the credibility of our findings by incorporating triangulation, reflexivity, peer debriefing, and thorough description in our methodology. We have also prioritized ethical considerations such as informed consent, confidentiality, and participant protection. Nevertheless, we acknowledge limitations like time constraints, scope, generalizability, geographic dispersion, data collection hurdles, and the potential bias from purposive sampling. Despite these challenges, our methodological approach maintains the trustworthiness of our findings and acknowledges the research's contextual constraints. Following this chapter, we delve into presenting our findings from the interviews and questionnaires. These findings will explore the experiences and perspectives of implementing blended learning, aiming to provide an all-inclusive understanding and guidance for future endeavours.

## Findings

### Introduction

This chapter presents the findings of a qualitative study on the perceptions of teachers and students regarding blended learning in Algerian universities during and after the COVID-19 pandemic. The research objectives aimed to understand the advantages, challenges, and strategies for improving the future blended learning experience. The chapter is organized to provide a comprehensive analysis of the findings, addressing research questions related to perceptions and implementation of blended learning. The research methodology involved interviews and questionnaires with teachers and Master-One students, and the chapter explores the perceived benefits, challenges, and strategies associated with blended learning. The findings are supported by evidence from interviews and questionnaires, and the chapter concludes by discussing the implications, connecting the findings to existing literature, and offering insights for educational institutions. In the following section, we examine the perceived advantages of blended learning in Algeria, including convenience, autonomy, diverse assessments, and enhanced student engagement.

### Perceived Advantages and Benefits

**Convenience and flexibility.** These findings highlight the experiences and opinions of several teachers regarding the convenience and flexibility of blended learning. Teacher 6 noted that blended learning made it easier for students living on campus to get in touch with their teachers using internet connectivity, and also mentioned that teachers could frequently get in touch with students through this approach, stating:

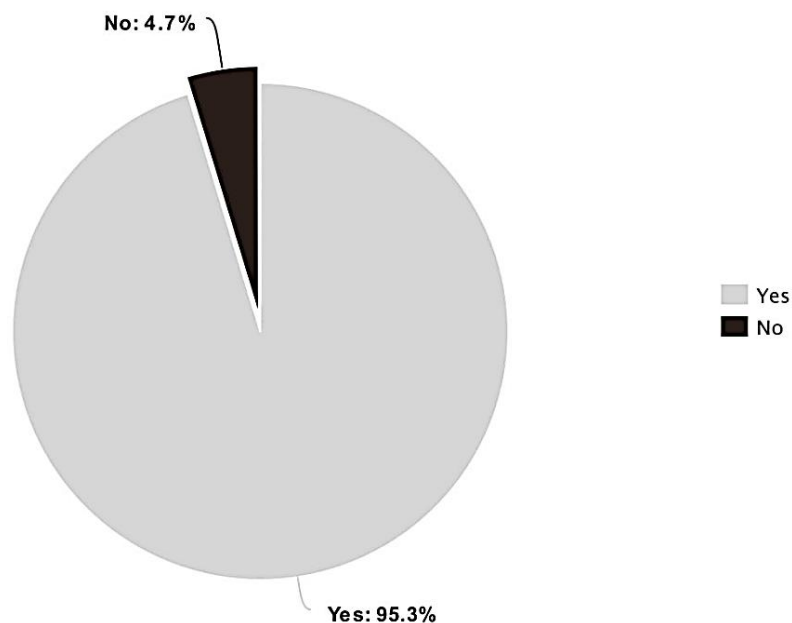
Through BL, teachers can get frequently in touch with students. The classroom was no longer the only place to meet.

Teacher 3 and Teacher 8 highlighted the benefits of blended learning for introverted students, including the ability to participate and share opinions comfortably and the convenience of being able to study from home without commuting.

Furthermore, students' responses on Question 1 support the teachers' perceptions, as shown in Figure 1. It is evident that a significant majority of students expressed positive perceptions towards using technology for learning in blended learning environments. They found it to be convenient, flexible, and comfortable. Only 7 students reported feeling uncomfortable with the use of technology for learning. It is evident that many students found blended learning to be a convenient and flexible learning experience. When asked about their comfort level with using technology for learning, students highlighted the convenience and flexibility that technology can offer in their learning experiences. Specifically, students appreciated the ability to access course materials and communicate with instructors at their own pace and from a range of locations.

### Figure 1

*Question 1 (I am comfortable with using technology for learning).*

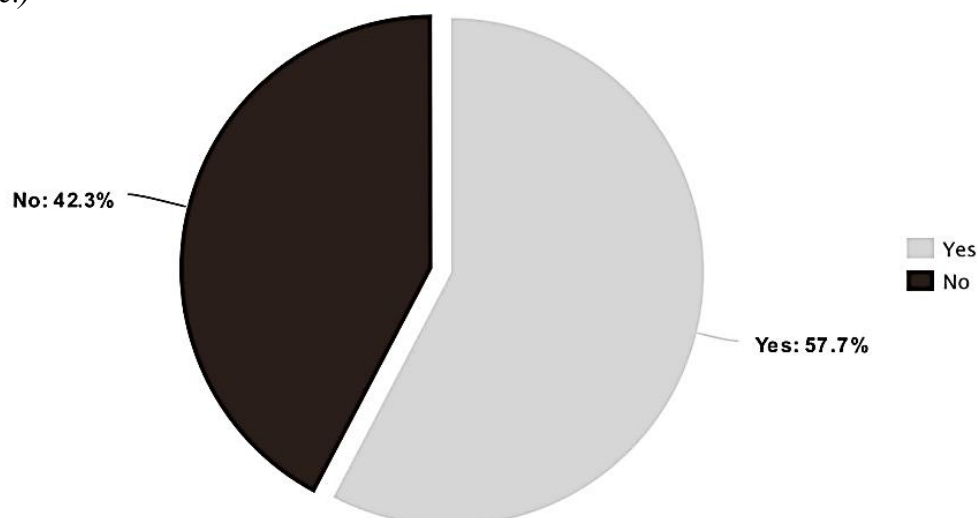


*Note. Number of Yes responses = 141, number of No responses=7, total N= 148.*

Similarly, many students who had a positive experience with blended learning during the COVID-19 pandemic found it helpful, convenient, and efficient, citing the availability of extra resources and visual aids that made it easier for them to understand concepts. These findings were supported by students' responses to Question 3 demonstrated in Figure 2, where they were asked if they had a good overall experience with blended learning during the COVID-19 pandemic. Over half of the students had a positive experience with blended learning. In terms of motivation to participate in the online components of their course, many students found the convenience and flexibility of online learning to be a motivating factor; observable in Figure 3. Students appreciated the ability to work on their own schedule, access and use technology, and communicate easily with others. Over half of the students felt motivated to participate in the online components of their course.

### Figure 2

*Question 3 (I had a good overall experience with blended learning during the Covid-19 pandemic.)*

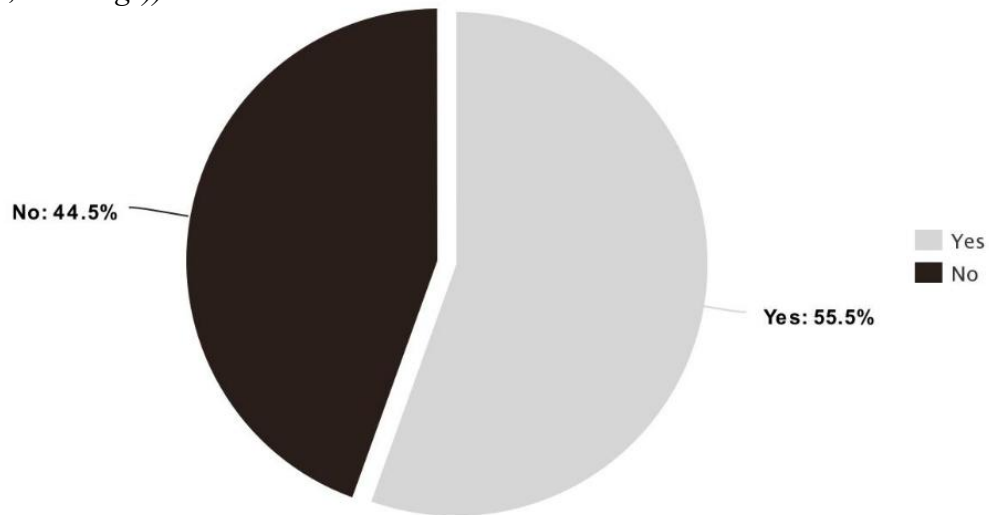


*Note. Number of Yes responses = 101, number of No responses=74, total N= 175.*



**Figure 3**

*Question 6 (I feel motivated to participate in the online components of my course. (Lectures; Assignments; Meetings)).*



*Note. Number of Yes responses = 95, number of No responses=76, total N= 171.*

**Autonomy and self-development.** The interviews with teachers revealed that blended learning can promote students' independence and skill development. Teacher 1 explained that by providing additional resources such as videos, maps, and pictures, students are encouraged to explore the subject beyond the lecture, fostering their autonomy:

I'm making sure to give the lecture, to upload the lecture online (...) Things that I haven't mentioned in the lecture. So, I found this beneficial from the time of COVID.

Furthermore, Teacher 7 observed that high-achieving students with strong technology and language skills demonstrated notable progress through blended learning. Teacher 6 emphasized that blended learning allowed students to work at their own pace, access online resources, and take control of their learning:

Blended learning was much easier for those living on campus; they could get in touch with their instructors just by using their internet connectivity. Teachers were able to finish the syllabus in time. Students became autonomous.

Blended learning not only enhances students' autonomy but also facilitates the development of technology skills and communication abilities, supporting their self-development.

According to Teacher 8, online learning provides an environment centered around autonomy, where students can take charge of their learning and study at their own pace without being constrained by specific instructions. This empowers them to cultivate self-motivation and assume control over their education.

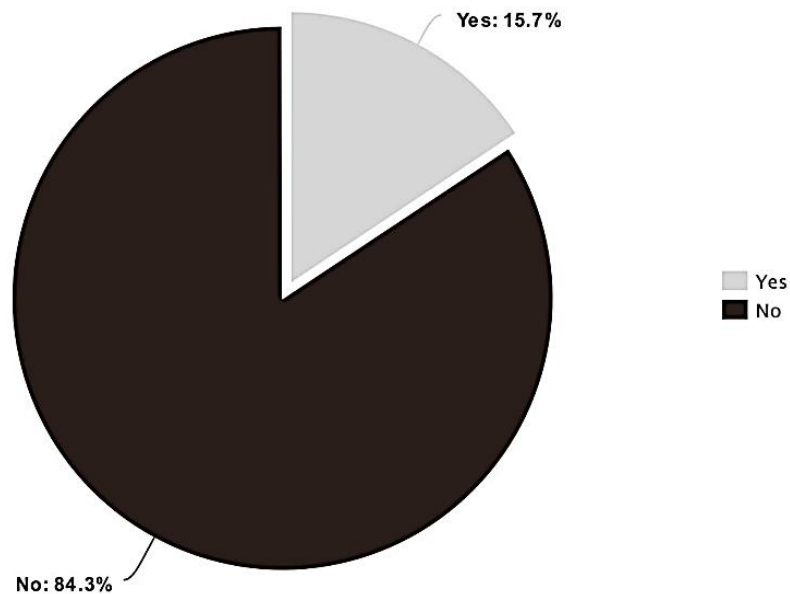
The student questionnaires provide insight into how they perceive autonomy and self-development in blended learning. As previously shown in Figure 1, when asked about their level of comfort with technology, the findings indicate that students have become more comfortable with using technology for learning out of necessity due to the COVID-19 pandemic. However, they also recognize that technology is beneficial for learning and can enhance their understanding, especially through the accessibility of extra resources and visual aids. Students who responded positively to Question 3, as displayed in Figure 2, expressed appreciation for the convenience and flexibility of blended learning during the pandemic. They found the autonomous learning aspect of blended learning to be less stressful than traditional learning and felt empowered to take control of their learning through the online components of their course.

Some students who were motivated to participate in the online components of their course, portrayed in Figure 3, also appreciated the autonomy that online learning provided. They felt less stressed and more empowered to take charge of their learning. Additionally, the few students that do use motivation strategies, apparent in Figure 4, these students mentioned using resources such as articles, e-books, and motivational videos to stay engaged in their

learning. These resources can assist students in gaining new perspectives, acquiring new skills, and remaining motivated by providing a sense of progress and accomplishment. Noteworthy, based on the responses to Question 10, as highlighted in Figure 5. It is evident that a considerable number of students prefer to use other technology tools or platforms in addition to the ones provided in their blended learning course, indicating a wide range of useful tools and platforms, including multimedia materials, online libraries, video presentations, online courses, and interactive audio-visual sites.

**Figure 4**

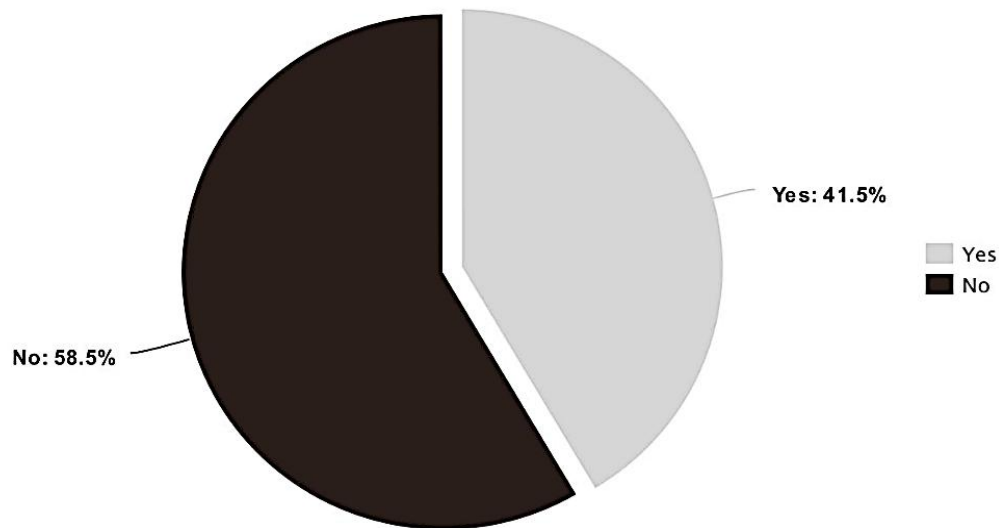
*Question 7 (Do you use strategies to stay motivated and engaged in your blended learning course?).*



*Note. Number of Yes responses = 27, number of No responses=145, total N= 172.*

**Figure 5**

*Question 10 (I prefer to use other technology tools or platforms in my blended learning course?).*

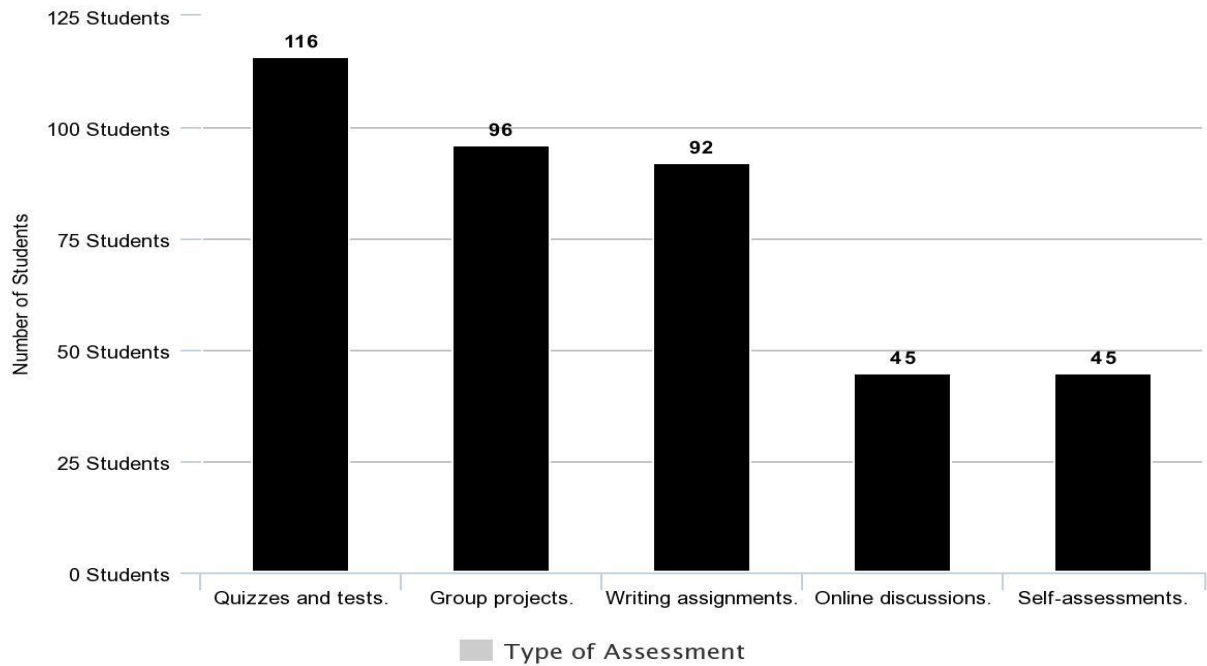


*Note. Number of Yes responses = 71, number of No responses=100, total N= 171.*

**Diverse potential for assessment and feedback.** The questionnaire responses on how students' learning is evaluated in Question 11, discernible in Figure 6; which indicates that a wide range of assessment methods are utilized in blended learning courses, with quizzes and tests being the most prevalent (116), followed by writing assignments (92) and group projects (96). These findings highlight the varied and flexible approaches employed by teachers to evaluate student learning in blended learning environments. In addition, the study reveals that the majority of students (97 out of 168) found the assessment methods used in their blended learning courses to be fair and effective as shown in Figure 7. The students cited several reasons, including the agreement on assessment criteria between students and teachers, the opportunity to learn from mistakes before exams, and the ease of undertaking assessments and receiving feedback.

**Figure 6**

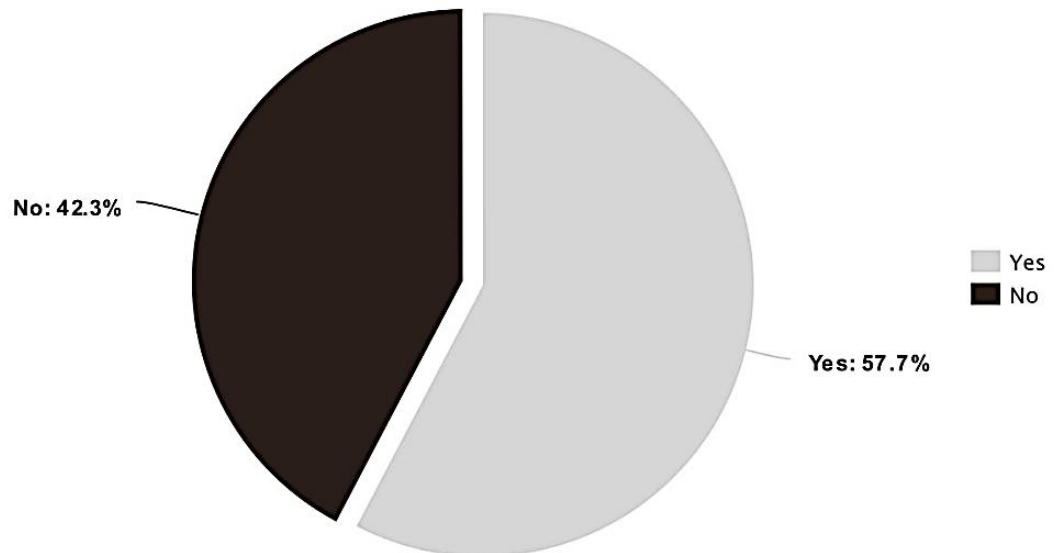
*Question 11 (How is your learning assessed in a blended learning environment?).*



*Note. "Other" option was omitted due to there being zero answers.*

**Figure 7**

*Question 12 (The assessment methods used in my blended learning course are fair and effective).*

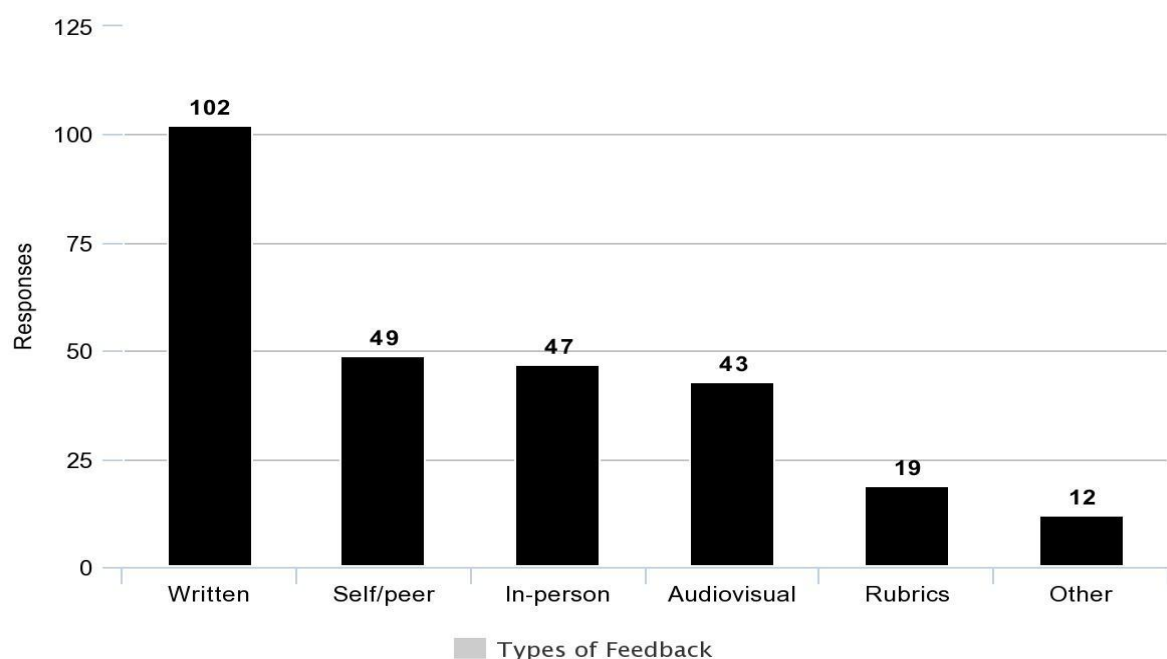


*Note. Number of Yes responses = 97, number of No responses = 71, total N = 168.*

Regarding feedback methods and whether students receive feedback, written comments emerged as the most preferred method, with 102 students choosing it as displayed in Figure 8. The second most preferred method was peer or self-assessment, with 49 respondents. Only 47 students selected in-person feedback as their preferred method. Based on the data presented in Figure 6 and Figure 8, it is clear that a considerable number of students in blended learning environments receive written feedback on their performances, primarily through quizzes, tests, group projects, and writing assessments. However, approximately half of the students reported receiving feedback in alternative formats, such as self-assessment, peer assessment, in-person interaction, and audio-visual means. It is worth noting that only 19 students indicated the use of rubrics for assessing and providing constructive criticism on their performances. Additionally, a few participants mentioned receiving no feedback whatsoever.

### Figure 8

Question 13 (How do you receive feedback on your performance in a blended learning environment?)



The findings align with the perceptions of teachers, who recognize the potential for diverse assessment and feedback methods in online learning. Teacher 3 demonstrated a strong understanding of blended learning and recognize the advantages and limitations of both traditional and online teaching methods. With their prior experience in teaching online, describe many of the advantages of assessment in a blended learning. They stated:

I gain time as a teacher. (...) I have even bought an application. It is like a scanner. I move my mobile phone on the paper, and the person gets his mark on the spot. I don't correct.

Teacher 3 also highlighted the use of online exams for the past five years, utilizing tools like Google Forms for immediate feedback and correction. These assessment methods were found to be effective and time-saving, eliminating the need for in-person corrections. Additionally, Teacher 4 acknowledged that students often prefer traditional modes of assessment focused on exam preparation.

**Enhanced student engagement and interaction.** The interviews with the teachers provided valuable insights regarding ways blended learning environments can enhance student engagement and interaction. Teacher 4 noted that students who actively engaged with the blended learning environment were more likely to perform well academically and could serve as motivators for their peers. They stated:

These examples are those who give you, as a teacher, this sparking motivation, and light up darkness around you.

This highlights the potential for blended learning to improve students' motivation and academic performance. Teacher 6 observed that incorporating technology into blended learning environments led to increased student motivation and engagement. Similarly,

Teacher 7 highlighted the importance of effective instructional design in maintaining or improving students' motivation and engagement. Finally, Teacher 9 noted that blended learning environments can help develop critical skills such as digital literacy and collaboration that are essential in today's workplace.

The student questionnaires confirmed the teachers' observations on the advantages of blended learning. Students recognized the benefits of developing technology skills, initially driven by necessity during the pandemic, but later motivated by a desire to keep up with technology. They highlighted the advantages of accessing extra resources and visual aids, indicating that technology enhances the learning experience. Additionally, students emphasized that blended learning became their sole method of continuing education during the pandemic, suggesting that it accelerated the adoption of blended learning in Algeria and motivated students to embrace new learning resources and technology. Despite some students feeling that face-to-face classes offered better interaction and understanding with teachers, as displayed in Figure 4, so many students mentioned effective learning strategies that they use to stay motivated and engaged in their blended learning courses, such as planning, organization, time management, external resources, and goal setting.

### **Perceived Challenges of Blended Learning**

**Lack of institutional support and training.** One key finding from the interviews is the widespread lack of support and training reported by teachers from their institutions. Specifically, Teacher 2 mentioned the absence of support and training on online learning and technology use in teaching, which affected the quality of blended learning and assessment methods. Additionally, Teacher 7 highlighted the issue of institutions imposing blended learning without adequate support or training, particularly in using platforms like Moodle. Teacher 4 further emphasized the importance of support that aligns with available conditions



and goals. Teacher 5 provided insights into the inadequacy of the teacher training provided by the administration, noting that it did not meet their real-world experiences and was mostly theoretical. They stated:

But honestly, what we have been taught, trained is totally different from what we have actually experienced with the students.

Finally, Teacher 6 emphasized the need for training for both teachers and students, allowing sufficient adjustment time to the new approach.

**Infrastructure and technical difficulties.** According to the interview results, several teachers have expressed their concerns about the challenges faced in implementing effective blended learning due to the lack of resources and infrastructure. One major obstacle frequently mentioned is the absence of adequate technology infrastructure, including a reliable internet connection. For instance, Teacher 2 mentioned that their department is unable to access the internet, forcing them to rely on traditional teaching methods such as Power Point presentations and data shows during in-person classes. Additionally, Teacher 9 highlighted the technical difficulties experienced by both teachers and students, such as internet connectivity problems and struggles with using online platforms. They stated:

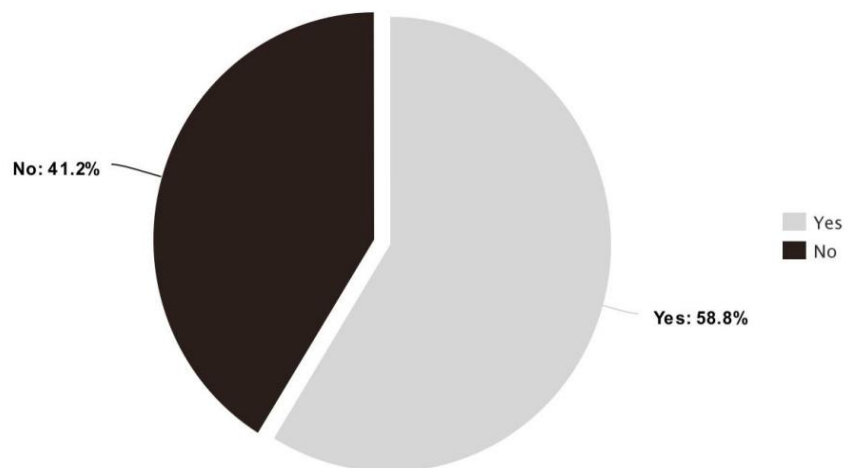
Some students did not have access to the internet, which made it difficult for us to teach everybody. Not knowing the progress of our students was a challenge as well.

Similarly, many students expressed dissatisfaction with the infrastructure and technical issues, echoing the concerns raised by the teachers. As was previously shown in Figure 2, 74 students had a negative experience with blended learning, they noted that their bad experience was attributed to poor implementation and limited internet access. However, the responses on Question 4, as demonstrated in Figure 9; which shows that over half of the students preferred blended learning over the traditional learning. However, 72 students expressed a preference for traditional in-person courses over blended learning. This

preference can be attributed to several factors, according to their responses, including the lack of technology access and the perception that traditional classrooms are more readily available and accessible. The challenges related to infrastructure and technical issues were particularly evident when students mentioned difficulties with online platforms and limited access to the necessary tools. As previously highlighted in Figure 3, 76 Students reported a lack of motivation to engage in the online components which was attributed to various technical challenges, including poor internet connection and a lack of necessary tools.

**Figure 9**

*Question 4 (Blended Learning is better than traditional in-person courses).*



*Note. Number of Yes responses = 103, number of No responses=72, total N= 175.*

**Motivation and engagement.** The interviews with teachers yielded key findings related to student motivation and engagement. A common theme emerged regarding limited interaction between students and teachers during the blended learning period. Teacher 1 noted minimal interaction, with only a few teachers utilizing online forums, citing a lack of time for individual student attention. Similarly, Teacher 2 highlighted decreased student

engagement, motivation, and minimal interaction with teachers, emphasizing a preference for face-to-face learning. Lack of institutional support was identified as a contributing factor.

Teacher 4 discussed challenges such as absenteeism and lack of focus, indicating difficulties in maintaining student engagement and motivation. Teacher 5 added that self-directed learning posed challenges for some students, leading to disengagement, stating:

The experience was mostly negative. I faced problems with not being present, especially with live meetings, like Google meets. Students preferred getting documents.

Teacher 7 explained that the inability to maintain motivation due to the large number of students, technical problems, and limited access resulted in low attendance and disengagement. The absence of face-to-face interaction negatively impacted student engagement, particularly for extroverted students, as mentioned by Teacher 8. They stated:

Extroverted students who enjoy being part of a group would not really enjoy this type of learning because they are used to class discussion, guidance from teachers, sometimes being even spoon-fed with information.

Figure 9 displays how a sizeable portion of students in the questionnaires expressed a preference for face-to-face courses over blended learning due to perceived benefits in terms of interaction and understanding. They believed that in-person classes allowed for better communication and comprehension with instructors. As previously shown in Figure 3, The questionnaire responses highlighted challenges faced by students in blended learning, including difficulties with motivation and engagement with online materials. Limited interaction, reduced accountability, and a lack of face-to-face contact with peers and instructors were identified as factors contributing to these challenges. Participants also reported issues with communication and feelings of isolation, further hindering engagement. Self-perceived motivation to participate in online components varied, with some citing

shyness or a lack of interest as barriers. Additionally, Figure 4 reveals a concerning trend as it depicts a low number of participants utilizing strategies to stay motivated and engaged in blended learning, emphasizing the need for interventions and support mechanisms.

**Difficulties with assessment and feedback.** One concern raised by Teacher 1 is the administration's insistence on easier assessments, which may hinder accurate evaluation of student understanding. They stated:

And even during the exam they were asked not to give them something difficult. Similarly, Teacher 2 emphasizes the need for robust assessment methods to prevent plagiarism in online settings. Building on this, Teacher 7 advocates for subjective assessments and emphasizes the significance of accessible platforms. Additionally, Teacher 8 stresses the students' lack of access to the platform, which hinders their ability to effectively do quizzes. They stated:

They do have quizzes, but the majority of the students do not have access to the platform because they don't have Moodle accounts, so it is impossible to really put into effect those quizzes.

Furthermore, looking again to the responses on Question 12 in Figure 7, a considerable number of students, expressed dissatisfaction with the fairness and effectiveness of assessment methods in blended learning. These students cited various justifications, including a lack of feedback and interaction, unclear explanations, inadequate prioritization of online assessments by teachers, difficulty in measuring effectiveness, insufficient training with online tools impacting performance, time constraints, and uninspiring assessments. Worth noting, when asked about how they receive feedback a subset of students reported a complete absence of feedback.

## Improving The Blended Learning Experience

**Institutional support and training.** The interviews with teachers provided valuable insights on improving the blended learning experience. Teacher 1 emphasized the importance of teachers gaining confidence and utilizing effective teaching strategies, such as visual aids and PowerPoint presentations, to engage students in the online environment. They stated:

I would say that teachers should get a little bit more confidence, and actually try lectures, online lectures.

Teacher 3 suggested the implementation of parallel online training and MOOCs to expand course options and certification opportunities. Teacher 4 highlighted the need for institutions to balance expectations with available resources and provide support to ensure a realistic and high-quality learning experience. They stated:

We, teachers, need more support and less directive to reach a balanced outcome reflecting our reality with available conditions.

In addition, Teacher 5 emphasized the necessity of a strong support system, including training and technical support for students especially. Teacher 6 underscored the importance of providing materials and training to prepare both teachers and students for blended learning. They stated:

Both teachers and students need more training about BL. The shift was too quick.

Both of them need more time to adjust themselves to such a new approach.

Universities should provide more materials for such new teaching and learning.

Teacher 7 suggests that effective management and easy access to online platforms are crucial for successful blended teaching. They emphasize the importance of creating a comfortable learning environment similar to a physical classroom. They stated:

If things are well managed and the platforms are easily accessed by the students, if the student is taking a comfortable atmosphere like the classroom, the blended teaching will succeed.

Similarly, Teacher 8 recommends that the institution actively participate by providing materials and technical support to improve the learning environment. Additionally, they suggest that teachers embrace technology and adapt to modern methods of teaching.

The students' suggestions regarding improving the blended learning experience reflect their recognition of the value of active learning, interactive assessments, and effective use of technology. They emphasized the implementation of a flipped classroom approach, the development of dedicated platforms and applications, and the integration of widely used tools like Google Meet and Zoom. The preference for visual aids and online accessibility of modules highlights the importance of multimedia resources and comprehensive online materials. Students also stressed the need for practical and accessible technological tools, a customized e-learning platform, and reliable internet connection. They acknowledged the importance of training both teachers and students in the use of online tools and expressed the desire for more frequent and structured online lectures. These suggestions collectively indicate the students' aspiration for a personalized, engaging, and well-supported blended learning environment.

**Interaction and engagement.** The interviews with teachers provided valuable perceptions into improving the blended learning experience. According to Teacher 1, the

significance of comprehensive online resources and materials can positively impact students' perception of teacher dedication and effort. They stated:

The more you work, the more you provide things online on the platform; the more students would see how much you care and how much you this could actually impact them positively or negatively.

Teacher 5 emphasizes the need for students to receive proper information and appreciation of blended learning to effectively engage with this educational method.

Teacher 8 stressed the need for flexibility, adaptability, and ensuring accessibility for all students in integrating technology into blended learning. Additionally, the potential benefits of leveraging social media platforms for collaboration and community building were highlighted. They stated:

They need to adapt and maybe use different ways as alternatives if it does not work on Moodle. From my experience, since I faced many difficulties using that platform, that's why I resorted to using Facebook and social media.

Moreover, students' perspectives on improving the blended learning experience revolved around enhancing online interaction, scheduling structured online lectures, developing engaging online courses, and creating a customized e-learning platform.

**Improving assessment methods.** The findings from the interviews with teachers shed light on the importance of aligning assessment methods with course objectives and utilizing a combination of formative and summative assessments in blended learning. Teacher 4 emphasized the need for assessments to match course objectives, incorporate technology, and measure desired learning outcomes. They also highlight challenges such as students' preference for exam-focused assessments and issues of cheating and plagiarism stating:

The kind of assessment will depend on the objectives of the course, on the content delivered, the delivery type, and the technological tools used. The assessment could be summative, like tests or exams, and formative, like quizzes and assignments.

## **Conclusion**

The findings chapter emphasized the significance of purposeful assessment methods in blended learning, highlighting the importance of aligning assessments with learning objectives, incorporating engagement strategies, and ensuring accurate evaluation of student progress. These recommendations, when implemented by institutions, can enhance the assessment process and contribute to overall improvement in blended learning outcomes. A thoughtful and effective assessment approach not only measures student achievement but also promotes meaningful learning outcomes. Moving forward, the next chapter will discuss and analyse the findings in greater detail, providing a comprehensive interpretation and discussion of the implications. The chapter will connect the findings to the research questions, existing literature, and identify areas for further exploration. It will serve as a platform to delve deeper into the visions gained from this study and offer recommendations for future research and practical applications in the field of blended learning.



## **Discussion**

### **Introduction**

Considering this study aims to investigate the blended learning implementation in Algerian universities during COVID-19. This chapter will identify correlations, patterns, and relationships among the findings; contextualising them within previous literature. These findings will be discussed under four themes which are convenience and autonomy, engagement and interaction, assessment and feedback, and institutional training and support. This chapter highlights the flexibility provided by blended learning, allowing students to access resources at their convenience and encouraging self-directed learning. It further examines the role of technology in promoting student engagement and interaction, albeit acknowledging the challenges of limited communication. The study also explores assessment methods and immediate feedback benefits while addressing administrative hurdles and plagiarism issues. Lastly, it underscores the necessity for comprehensive training and ongoing institutional support for successful blended learning implementation.

### **Convenience and Autonomy**

As depicted in the literature review, blended learning has emerged as a strong teaching approach, marked by correlations, patterns, and relationships that underscore its positive perspectives from both teachers and students. Notably, the convenience, flexibility, and autonomy offered by blended learning appear to significantly contribute to its value. Similar to the findings of (Aji et al., 2020; Al-Samiris, 2021; Adetoye, 2021; Wu & Luo, 2022), this approach seems to encourage and accommodate various learning styles and paces, even catering to introverted and shy students who may feel overwhelmed by in-person classes. This notion is strengthened when looking at the findings of Chohra (2022). The resulting

increased student engagement demonstrates a positive correlation with the convenience and flexibility offered by blended learning. Furthermore, the digital resources available, and their easy accessibility, present alternative means of grasping complex concepts, thereby enhancing comprehension. The seamless communication between teachers and students through online platforms, as noted by the teachers, augments this learning experience, pushing the boundaries beyond traditional classrooms.

Parallel to the findings of Mahfouz and Salam (2021) and Chennoufi (2022), it's evident from teacher interviews and student questionnaires that the autonomy and self-development facilitated by this method are of considerable value. It appears that the online resources and self-paced learning embedded in blended learning empower students to steer their educational journey, enhancing their self-motivation. This is also echoed by students, who value the convenience and flexibility offered, signifying a strong correlation between blended learning and increased student autonomy. Consistent findings are also reported in (Aji et al., 2020). The role of technology in this educational journey cannot be understated; it has proven instrumental in accessing additional resources and enhancing understanding. An interesting pattern of students actively exploring further technology tools emerged, indicating their desire to enrich their learning experiences. Furthermore, motivational strategies seem to be intertwined with the success of blended learning, as students using additional resources such as e-books and motivational videos expressed enhanced engagement and empowerment in their learning process.

However, despite these numerous benefits, it's important to address some significant challenges that undermine them. Among these, the recurring theme of inadequate technology infrastructure, especially unstable internet access, stands out as the literature concurs with these findings in several studies (Aji et al., 2020; Mahfouz & Salam, 2021; Nsengimana et al., 2021; Mounjid et al., 2021). There's an obvious correlation between the quality of

technological infrastructure and the effectiveness of blended learning implementation and student engagement. Teachers, in particular, find it challenging to fully incorporate online learning tools and transition to blended learning in the absence of reliable internet connections, thereby adversely affecting the learning experience. Similarly, students face difficulties in fully engaging in blended learning due to limited internet access, challenges with online platforms, and a lack of essential technological tools. This has even led some students to perceive traditional classrooms as more effective and accessible. Hence, it's evident that addressing these infrastructure and technical issues is paramount in optimizing the blended learning experience. Only by overcoming these obstacles can we truly harness the full potential of blended learning in fostering educational growth and development.

### **Engagement and Interaction**

Conforming to the conclusions of Aji et al. (2020), the findings show a compelling connection between blended learning environments and enhanced student outcomes, notably when these environments are thoughtfully designed and efficiently used. Teacher interviews reveal a consistent theme that students interacting actively with the blended learning model exhibit superior academic performance and elevated motivation levels. This engagement appears to be fueled by the inclusion of technology, indicating a link between technological integration and augmented student engagement. The concept that technological proficiency, an attribute even more crucial in the post-COVID-19 era, enhances student motivation, corresponds with student questionnaire responses, presenting a coherent pattern across both datasets. Furthermore, students recognized the improvement in their understanding via technology, highlighting the availability of additional resources and visual aids as considerable benefits. This aligns with the teachers' observations regarding technology's role in amplifying learning experiences. This points to a reciprocal relationship between student

motivation, academic performance, and the blended learning environment, with the triumph of one component influencing the others.

However, these findings also reveal another set of challenges associated with blended learning. While it offers significant benefits, blended learning falls short in engaging some students due to limitations in interaction and communication with teachers and peers. This decline in engagement and motivation, similarly reported by Mahfouz and Salam (2021) and Mekranter (2022), emphasized by teachers' observations, matches students' self-reported preference for face-to-face learning, owing to its perceived benefits in comprehension and interaction. A similar preference was described by Adetoye (2021). The connection between minimal student-teacher interaction and reduced student engagement showcases a pressing concern within the blended learning environment. Moreover, the data suggests a negative association between self-directed learning, in the blended learning context, and student engagement. Students struggling with self-direction may find themselves disengaged, leading to increased absenteeism, as reported by Teacher 4, setting off a cycle of disengagement and poor attendance. Furthermore, extroverted students, who thrive on group interactions, may struggle with the isolation inherent in blended learning, suggesting a potential personality-learning style mismatch. Finally, the limited use of motivational strategies, as shown in Figure 4, highlights the negative correlation between lack of support and engagement in a blended learning setting.

In response to these challenges, both teachers and students emphasize the importance of comprehensive, interactive, and accessible online resources in blended learning. This mutual emphasis indicates a potent correlation between the quality and diversity of online materials and overall student engagement, as depicted by Nsengimana et al. (2021), as well as the perception of teacher dedication. The need for flexibility and adaptability, as echoed by Teacher 8, resonates with students' suggestions for more structured online lectures and

personalized e-learning platforms. This insinuates a link between the adaptability of the teaching method and the consistency of student engagement. Another discernible pattern is the desire for improved online interaction, which aligns with the idea of using social media platforms for community building and peer learning, the benefits of which were noted by Mahfouz and Salam (2021). This alignment highlights the importance of cultivating a sense of community and efficient communication to enhance the blended learning experience. Finally, Teacher 5's emphasis on appreciating blended learning mirrors the students' demand for engaging courses, suggesting a more profound understanding and appreciation of the learning method leading to increased motivation and active participation. Together, these patterns imply that a successful blended learning experience relies on integrating versatile online resources, structured and adaptable methodologies, effective online interaction, and a deep understanding and appreciation of the learning environment.

### **Assessment and Feedback**

Our examination of student questionnaires and teachers' perspectives creates a compelling narrative regarding assessment and feedback methods in blended learning environments. Initially, it seems a diverse range of assessments including quizzes, tests, writing assignments, and group projects cater to distinct learning preferences, fostering a comprehensive learning approach. Teachers corroborated this variety, emphasizing the efficacy of online tools such as Google Forms for swift feedback and corrections. Further, a majority of students expressed satisfaction with these methods, citing clarity of assessment criteria, the chance to learn from mistakes prior to formal exams, and the convenience and efficiency of assessments and feedback. This alignment of student satisfaction with teachers' views reflects the beneficial impacts of blended learning assessments on the teaching process.

However, alongside these positive findings, the data also highlights challenges. Certain administrative demands for less rigorous assessments, measures inadequately preventing plagiarism, restricted access to platforms, and limited personalized feedback due to the number of students, a challenge mentioned by Mounjid et al. (2021), culminate in overall student dissatisfaction. These challenges form an interconnected network, each influencing and amplifying the others. For example, administrative pressures for easier assessments can spark a sense of unfair evaluation and fuel student dissatisfaction. Similarly, the absence of effective measures to curb plagiarism, a challenge highlighted by Ching (2020), coupled with limited robust online assessment tools, not only risk assessment integrity but also diminish the learning process's effectiveness. Further exacerbating the situation is the limited accessibility to learning platforms. Insufficient personalized feedback serves to intensify these problems, creating a feedback void, which inhibits students from understanding their progress and improvement areas.

Moving forward, the interviews also draw attention to several relationships amongst assessment alignment with course objectives, the use of formative and summative assessments, the inclusion of technology, and academic misconduct issues. Teachers' emphasis on aligning assessments with course objectives highlights the importance of ensuring that assessment tools accurately measure the intended learning outcomes. The preference for a balanced mix of summative and formative assessments implies an awareness of the need for holistic evaluation of learning, as opposed to an overemphasis on exams. Yet, this balance also counters challenges brought by students' exam-focused mindset. The consistent inclusion of technology in assessments demonstrates teachers' acknowledgement of the digital nature of blended learning. Nevertheless, it also brings to light ethical concerns like academic dishonesty. Hence, these findings collectively underscore the intricate interdependence of various aspects in designing and implementing assessments in a blended

learning environment. The interconnectedness of the highlighted challenges emphasizes the need for a collective approach to enhance the fairness, effectiveness, and overall satisfaction of assessment methods in blended learning environments.

### **Institutional Training and Support**

In line with how Lamraoui (2021) noted the lack of technological preparedness among teachers in Algeria, in scrutinizing the interview data, a consistent narrative becomes apparent, highlighting shortcomings in institutional support and teacher training. This pattern was echoed by Ching (2020), Mahfouz and Salam (2021), and Mounjid et al. (2021). It is most prominent in relation to technological proficiency and the execution of blended learning strategies. Teachers, specifically Teacher 2 and Teacher 7, brought to light their lack of training and institutional support in online platforms like Moodle. This deficiency hindered their ability to implement blended learning and assessment methods effectively, suggesting a correlation between the success of blended learning and the level of institutional support. Reinforcing this, Teacher 4 outlined the necessity of well-aligned institutional support, a key component for successfully integrating blended learning strategies.

Another distinct theme to emerge from the interviews was the gap between theoretical training and practical teaching experiences, particularly highlighted by Teacher 5. This gap indicated the need for more realistic training that closely mirrors the classroom scenario. Teacher 6 further pointed out a symbiotic relationship between teacher and student training in blended learning, emphasizing the significance of parallel training strategies that acknowledge the adaptation period required by both parties. The sum of these findings underscores the importance of sustained institutional commitment towards comprehensive and practical teacher and student training in blended learning.

In agreement with the emphasis on the need for intentional and reusable course design (Littlejohn & Pegler, 2007; Stein & Graham, 2013). The exploration of shared perspectives among teachers and students uncovers a mutual emphasis on the necessity for robust support infrastructure and appropriate pedagogical adjustments. Both parties value professional development for teachers and acknowledge the impact of well-equipped teachers employing effective digital teaching strategies. The shared belief also extends to recognizing the critical role of technology in blended learning, which manifests in calls for reliable technical support, dedicated platforms, and digital tools. Both groups' preference for more interactive learning materials further echoes their desire for active engagement over passive content consumption. They collectively identify the importance of an accessible and comfortable digital learning environment and express concerns about the pacing and transition to new learning modalities. These common threads underscore the complex interplay between infrastructural support, suitable pedagogy, technology integration, and pacing in achieving successful blended learning implementation.

### **Limitations**

Our findings should be interpreted in light of certain limitations that should be acknowledged. Firstly, it is important to note that our study did not explore potential correlations between blended learning and demographic variables, such as age, gender, ethnicity, socio-economic status, and geographic location. The limited scope and sample size of our study restrict the generalizability of our findings to broader populations. Consequently, caution should be exercised when applying our findings to diverse demographic groups. Additionally, it is crucial to recognize that our study primarily employed qualitative research methods. While this approach provided rich insights into participants' experiences and perspectives, it may not capture the full quantitative representation of the phenomenon.



Further research incorporating quantitative approaches is warranted to complement our qualitative findings. By acknowledging these limitations, we contribute to a more comprehensive understanding of the implications and boundaries of our study.

## **Recommendations**

Future studies should take into account the limitations identified in our findings to advance the understanding of blended learning. Specifically, researchers should consider exploring the potential correlations between blended learning and demographic variables, such as age, gender, ethnicity, socioeconomic status, and geographic location. This will provide a more comprehensive understanding of how these factors may influence the effectiveness and outcomes of blended learning approaches. Additionally, it is recommended that future research employs a mixed-methods approach that combines qualitative and quantitative methods to capture a more nuanced understanding of blended learning. Furthermore, conducting experimental studies that compare and examine the different models of blended learning, such as the Station-Rotation, Lab-Rotation, or Flipped Classroom models, would contribute to the field by providing empirical evidence on the effectiveness and impact of each model. Such studies can help inform educational practitioners and policy makers in making informed decisions about the implementation of blended learning in diverse educational settings. By addressing these recommendations, researchers can contribute to the ongoing advancement and improvement of blended learning practices.

## **Conclusion**

The discussion chapter of the document examined the implications of blended learning, focusing on its benefits, challenges, and potential avenues for improvement. It underscored the convenience, flexibility, and autonomy that blended learning offers,

accommodating various learning styles and paces. The role of technology in enhancing learning experiences was highlighted, despite the challenges posed by inadequate infrastructure and unstable internet access. The chapter also emphasized the importance of engagement and interaction in blended learning environments, with a focus on the design and efficient use of these environments. It delved into assessment and feedback methods, noting their impact on the teaching process and student satisfaction. However, it acknowledged challenges such as measures inadequately preventing plagiarism and limited personalized feedback due to the number of students. The chapter also discussed the limitations of the study, including the limited scope and sample size, and the primary use of qualitative research methods, which may not capture the full quantitative representation of the phenomenon. The chapter concluded with recommendations for future research, emphasizing the need for exploring potential correlations between blended learning and demographic variables, and the importance of employing a mixed-methods approach. The next chapter will provide a summary of the study and answer the main research questions.

## General Conclusion

This study aimed to explore the implementation of blended learning during the COVID-19 pandemic in Algerian universities. The research purpose was to investigate various aspects of blended learning, including convenience and autonomy, engagement and interaction, assessment and feedback, as well as institutional training and support. By addressing the research questions and examining these dimensions, this study endeavoured to provide valuable insights and recommendations for teachers, policy makers, and stakeholders involved in blended learning initiatives. The literature review chapter provided a comprehensive overview of the existing body of knowledge on blended learning, highlighting its potential benefits and challenges. It served as a foundation for understanding the theoretical underpinnings of this educational approach and identified gaps in the literature, which this research aimed to address. In the methodology chapter, the research design and data collection methods were outlined. Qualitative data obtained through teacher interviews and student questionnaires were analysed to gain a deeper understanding of the perceptions and experiences of participants regarding blended learning in the Algerian context.

The findings chapter presented the outcomes of the data analysis. It explored the convenience and autonomy afforded by blended learning, highlighting the flexibility it offers to students. The chapter also delved into the theme of engagement and interaction, emphasizing the role of technology in enhancing student motivation and participation. Furthermore, it examined the assessment and feedback methods employed in blended learning, as well as the importance of institutional training and support. The discussion chapter provided a comprehensive analysis and interpretation of the findings. It identified the implications and insights drawn from the data, acknowledging the benefits of blended learning while also addressing the challenges that need to be overcome. The chapter emphasized the significance of infrastructure, effective online interaction, balanced

assessment approaches, and comprehensive training for successful blended learning implementation. Based on the research findings, several recommendations can be made. First, there is a need for investment in technological infrastructure to ensure reliable and accessible online learning platforms. Additionally, institutions should prioritize the training of teachers and students to enhance their digital literacy and proficiency in blended learning methodologies. It is also essential to design engaging and interactive online resources and promote effective communication and collaboration among teachers and students.

In conclusion, this research aimed to contribute to the understanding of blended learning implementations in Algerian universities during and after the COVID-19 pandemic. The research findings highlight the potential benefits of blended learning, including convenience, autonomy, and increased engagement. However, challenges such as limited interaction and communication, assessment issues, and the need for institutional support must be addressed. Moving forward, further research is warranted to explore the long-term implications of blended learning implementation, considering factors such as sustainability, equity, and student performance. As technology continues to advance, blended learning will likely remain a relevant and adaptable approach to education. Continued exploration and refinement of blended learning practices will contribute to the improvement of teaching and learning outcomes, ultimately preparing students for success in an ever-changing world.

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## Appendix A

### Interview Consent Form



### **An Inquiry into the Implementation of Blended Learning during and Post Covid-19 Pandemic in the Algerian Universities**

This interview aims to gather insights and perceptions from teachers who have experienced blended learning in their courses. The goal is to better understand the advantages and challenges of blended learning and to identify areas where improvements could be made, with the findings helping teachers and institutions enhance the quality of blended learning and meet student needs. Blended learning is an approach that combines traditional classroom instruction with online and digital learning activities. It involves a mix of in-person and online experiences. The aim of blended learning is to provide a more flexible and personalized learning experience that enhances student engagement, motivation, and achievement. Participation in this study is voluntary, and you have the right to withdraw your participation at any time without penalty. If you agree to participate, you will be asked to take part in an interview that will consist of questions about your experience with blended learning.

All information collected in this study will be kept confidential. Your responses will be anonymous, and your personal information will not be disclosed to anyone. By signing this consent form, you are indicating that you have read and understood the information provided above and that you voluntarily agree to participate in this study. Thank you for considering participating in this study. Your opinions and suggestions are greatly appreciated.

- Please read each statement below and then confirm that you agree or disagree by placing your initials in the appropriate box.

Statements	Yes	No
- I have read and understood the information provided to me in the information sheet.		
- I have had the opportunity to ask questions about this research.		
- I agree to the interview being audio recorded.		
- I understand that I can decline to answer any questions.		
- I understand that I can withdraw my answers in part or full, anytime up until 6 months after data collection.		
- I agree to anonymised quotations being used in my academic presentations or publications of this work.		
- I agree to my data being used in any subsequent work that builds on this current project.		

Signature and date of person giving consent (the participant)

.....

Signature and date of person obtaining consent (the researcher)

.....

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## Appendix B

### Interview Questions



### An Inquiry into the Implementation of Blended Learning during and Post Covid-19 Pandemic in the Algerian Universities

#### Interview Questions:

1. What is your teaching background and experience?
2. How familiar are you with blended learning?
3. What is your experience with blended learning?
4. What challenges have you faced using blended learning during the pandemic?
5. What are the benefits and drawbacks of blended learning for EFL students compared to traditional in-person instruction?
6. How do you integrate technology into your blended learning courses?
7. What types of technology do you use in your courses?
8. How have you maintained or improved student motivation and engagement in a blended learning environment?
9. How has blended learning impacted the interaction between you and your students?
10. What resources have been most useful in the shift to blended learning?
11. How well do you feel supported by your institution or department when it comes to implementing blended learning?
12. How do you assess student learning in your blended learning courses?
13. How effective do you think your assessment methods are for blended learning?

14. What suggestions do you have for improving the blended learning experience for both teachers and students?

## Appendix C

### Students Questionnaire



### An Inquiry into the Implementation of Blended Learning during and Post Covid-19 Pandemic in the Algerian Universities

This questionnaire aims to gather insights and perceptions from students who have experienced blended learning, in order to better understand the advantages and challenges of this approach and identify areas for improvement. Blended learning combines traditional classroom instruction with online and digital learning activities to provide a more flexible and personalized learning experience. Participation in the study is voluntary, and all information collected will be kept confidential. By completing the questionnaire, students indicate their voluntary agreement to participate and contribute to improving the quality of blended learning.

If you have any questions or concerns about this study, please contact us at:

[we.three.n1@gmail.com](mailto:we.three.n1@gmail.com)

**Choose your answer by checking the empty boxes.**

**Gender:** Male.  / Female.  ; **Age:**... ; **Educational Level:**.....

1. I am comfortable with using technology for learning.

➤ Yes.  / No.

➤ Justify:.....

.....

.....  
 .....

2. Technology is accessible for me. (pick one answer)

	Somewhat Agree	Neutral	Somewhat Disagree	Disagree
Agree				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. I had a good overall experience with blended learning during the Covid-19 pandemic.

➤ Yes.  / No.

➤ Justify:.....  
 .....  
 .....  
 .....

4. Blended learning is better than traditional in-person courses.

➤ Yes.  / No.

➤ Justify:.....  
 .....  
 .....  
 .....

5. What challenges have you experienced with blended learning? (Select all that apply)

- Difficulty with online platforms.
- Difficulty with motivation and engagement with online materials.
- Lack of access to technological tools for learning. (Internet; computer; etc...)
- Difficulty with time management and keeping up with courses.



Difficulty with communication and interaction.

Other. (write in the empty space below)

.....  
.....  
.....

6. I feel motivated to participate in the online components of my course. (Lectures; Assignments; Meetings)

➤ Yes.  / No.

➤ Justify:.....  
.....  
.....

7. Do you use strategies to stay motivated and engaged in your blended learning course?

➤ Yes.  / No.  (If yes, give examples below)

.....  
.....  
.....

8. What resources are available to you as a student in a blended learning course? (Select all that apply)

Online learning platforms.

Digital textbooks. (E-books)

Online libraries.

Multimedia materials. (Videos, podcasts, presentations...etc)

Other. (write in the empty space below)

.....  
.....  
.....

9. The quality of online learning resources provided in blended learning courses is good.

(pick one answer)

			Somewhat	
	Somewhat Agree	Neutral	Disagree	Disagree
Agree				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. I prefer to use other technology tools or platforms in my blended learning course?

➤ Yes.  / No.  (If yes, give examples below)

.....  
.....  
.....  
.....

11. How is your learning assessed in a blended learning environment? (Select all that apply)

- Quizzes and tests.
- Writing assignments.
- Group projects.
- Online discussions.
- Self-assessments.
- Other (Write in the empty space below)

.....  
.....  
.....

12. The assessment methods used in my blended learning course are fair and effective.

➤ Yes.  / No.

➤ Justify:.....  
.....  
.....  
.....

13. How do you receive feedback on your performance in a blended learning environment?

(Select all that apply)

- Written comments.
- Audio/video feedback.
- In-person feedback.
- Rubrics. (A set of guidelines for the assessment)
- Self/peer assessment.
- Other. (write in the empty space below)

.....  
.....  
.....

14. What suggestions do you have for improving the blended learning experience for both teachers and students?


.....  
.....  
.....  
.....

## Appendix D

## Campus Entrance and Commitment Papers

الجمهورية الجزائرية الديمقراطية الشعبية

REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE  
 MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE SCIENTIFIQUE  
 UNIVERSITÉ MOHAMED EL BACHIR EL IBRAHIMI B.B.A  
 FACULTÉ DES LETTRES ET LANGUES  
 DÉPARTEMENT D'ANGLAIS

  
 UNIVERSITÉ MOHAMED EL BACHIR EL IBRAHIMI  
 BORDJ BOU ARRERGJAJ

وزارة التعليم العالي والبحث العلمي  
 جامعة محمد البشير الإبراهيمي برج بوعروريج  
 كلية الآداب واللغات  
 قسم اللغة الإنجليزية

السيد: .....  
 إلى السيد: رئيس قسم اللغة الإنجليزية  
 العنوان: جامعة محمد البشير الإبراهيمي  
 برج بوعروريج


**الغرض: طلب السماح بدخول مؤسستكم**

يشرفني أنه أقدم الى سيادتكم بطلبي هذا، والمتمثل في طلب السماح بدخول مؤسستكم:  
 جامعة محمد خيضر بولاية بسكرة ..... للفترة الممتدة من 2023/03/14 الى 2023/05/14  
 غاية 2023/05/14  
 في اختصاص: تعليمية اللغات الأجنبية

تقبلوا مني فائق التقدير والاحترام.

بتاريخ: 2023/03/14

المعني بالأمر  
 رئاسة القسم  
 رأي وموافقة رئاسة قسمكم

  
  
 رئيس قسم اللغة الإنجليزية  
 بوزيدي  
  
 رئيس قسم اللغة و الآداب الإنجليزي  
 أ/العالم

التعهد

أنا الممضي أسفله السيد (ه) ... هادي ... حبيبي

المولود (ه) في: 23 / 03 / 1997 ... بيسكرة - بيسكرة

الحامل لبطاقة التعريف رقم: 400164119

الصادرة في: 14 / 04 / 2016 ... بيسكرة

أتعهد و ألتزم أن أحترم النظام الداخلي للمؤسسة وألتزم بمواقيت العمل و السلوك الحسن خلال فترة الترخيص.

برج بوعكريريج في:

أنا الممضي السيد (ه) ... هادي ... حبيبي  
بطاقة التعريف رقم: ...  
ببرج بوعكريريج

في: 20 قفري 2023

إمضاء الممضي بالأمر

*(Handwritten signature)*

من رئيس المجلس الشعبي البلدي  
و بتفويض منه  
هو: **الهاجري فيصيل**  
بلدية



الجمهورية الجزائرية الديمقراطية الشعبية

REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE

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وزارة التعليم العالي والبحث العلمي  
جامعة محمد البشير الإبراهيمي برج بوعربويج  
كلية الآداب واللغات  
قسم اللغة الإنجليزية

إلى السيد: رئيس قسم اللغة الإنجليزية  
بجامعة سطيف - محمد لمين دباغين-

السيد: علي بن بوعربويج  
العنوان: جامعة محمد البشير الإبراهيمي

### الغرض: طلب السماح بدخول مؤسستكم

يشرفني أنه أقدم الى سيادتكم بطلبي هذا، والمتمثل في طلب السماح بدخول مؤسستكم:

جامعة سطيف - محمد لمين دباغين

للفترة الممتدة من 13-03-2023 الى غاية 22-03-2023

في اختصاص: تعليمية اللغات الأجنبية

تقبلوا مني فائق التقدير والاحترام.

بتاريخ: 13/03/2023

المعني بالأمر

رئاسة القسم



رأي وموافقة رئاسة قسمك



التزام

أنا الممضي أسفله السيد(ة) .. علوي بو.سفي.ا.سما.عيل .....

المولود(ة) في: ... 07.12.1999. عين.و.لمان. - سد.طيف.

الحامل لبطاقة التعريف رقم: ..... 45.13.777.6.1

المصادرة في: ... 11.04.2022. بلدة.عين.و.لمان. - سد.طيف

أتعهد و ألتزم أن أحترم النظام الداخلي للمؤسسة وألتزم بمواقيت العمل و السلوك

الحسن خلال فترة الترخيص.

أو من المجلس البلدي ... بو.سفي.ا.سما.عيل

بطاقة التعريف رقم ...

فيتم في 2023

بلواحي فيصل  
مجلس البلدي  
و بتفويض من  
رئيسي للإدارة



إحضار الممضي بالأمر

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### ملخص

في أعقاب جائحة فيروس كورونا المستجد (كوفيد-19) وتأثيره الواسع النطاق ، اضطرت مؤسسات التعليم العالي إلى اعتماد التعلم المختلط ، وهو نهج تعليمي يمزج بين الأدوات التكنولوجية والتدريس التقليدي وجهًا لوجه. شهد هذا الأسلوب ارتفاعًا في شعبيته مع تقدم التكنولوجيا التي أعادت تشكيل الممارسات التربوية ، مما جعله خيارًا طبيعيًا في التحول الذي فرضته حاجات الجائحة العالمية. تهدف هذه الدراسة إلى الغوص في نشر وآثار التعلم المختلط خلال هذا الوقت غير المسبوق. كان عملية البحث مستندة إلى نهج نوعي ، يشمل كلا من الاستبيانات والمقابلات. ساهم عينة كبيرة من 175 طالبًا على مستوى الماجستير و 9 معلمين بخبراتهم وآرائهم في هذا الاستكشاف ، مساهمة في مجموعة بيانات غنية ومتنوعة. تم تحليل هذه البيانات بعناية لاستخراج النتائج الرئيسية. تبرز التحقيق بشكل واضح الفوائد المحتملة المتأصلة في التعلم المختلط ، مثل زيادة سهولة التعلم للطلاب ، والاستقلالية ، وتحسين انخراط الطلاب. ومع ذلك ، فإنه يبرز أيضًا التحديات المرتبطة به. خروج التفاعل والاتصال عن حدوده ، وصعوبات في عملية التقييم ، وحاجة إلى دعم مؤسسي قوي كانت عقبات كبيرة. تبرز هذه التحديات مجالات رئيسية حيث يمكن أن تؤدي الجهود المتضافرة وتخصيص الموارد إلى تحسينات كبيرة. من خلال تقديم نظرة عميقة على جدوى وفعالية التعلم المختلط في وقت الأزمة ، تساهم هذه الدراسة برؤى قيّمة في مجال البحث التربوي.



### **Abstrait**

À la suite de la pandémie de la maladie à virus Corona de 2019 (COVID-19) et de son impact généralisé, les établissements d'enseignement supérieur ont été contraints d'adopter l'apprentissage mixte, une approche pédagogique qui allie outils technologiques et enseignement traditionnel en face à face. Cette méthode a connu un regain de popularité à mesure que les progrès technologiques ont remodelé les pratiques pédagogiques, ce qui en fait un choix naturel dans le changement rendu nécessaire par les exigences de la pandémie mondiale. Cette étude se propose d'approfondir le déploiement et les ramifications de l'apprentissage mixte en cette période sans précédent. Le processus de recherche était ancré dans une approche qualitative, intégrant à la fois des questionnaires et des entretiens. Un échantillon conséquent de 175 étudiants à la maîtrise et 9 enseignants ont prêté leurs expériences et perspectives à cette exploration, contribuant à un ensemble de données riche et varié. Ces données ont ensuite été méticuleusement analysées pour en extraire les principaux résultats. L'enquête souligne clairement les avantages potentiels inhérents à l'apprentissage mixte, tels que la commodité accrue pour les apprenants, l'autonomie et l'engagement accru des étudiants. Cependant, il présente également les défis associés. Une interaction et une communication limitées, des difficultés dans le processus d'évaluation et le besoin d'un soutien institutionnel solide sont apparus comme des obstacles importants. Ces défis mettent en évidence des domaines clés où des efforts concertés et l'allocation de ressources peuvent conduire à des améliorations substantielles. Fournissant un regard approfondi sur la praticité et l'efficacité de l'apprentissage mixte en temps de crise, cette étude apporte des informations précieuses au domaine de la recherche en éducation.

الجمهورية الجزائرية الديمقراطية الشعبية  
وزارة التعليم العالي والبحث العلمي

جامعة محمد البشير الابراهيمي برج بوعريريج

**تصريح بالالتزام بقواعد النزاهة العلمية لإنجاز البحث**

أنا الممضي (ة) أسفله،

السيد (ة) علوي يوسف اسماعيل الصفة: طالب

الحامل (ة) لبطاقة التعريف الوطنية رقم: 401377761 والصادرة بتاريخ: 2022.04.11

والمكلف (ة) بإنجاز مذكرة ماستر،

عنوانها:

An Inquiry into the Implementation of Blended Learning During and Post  
COVID-19 Pandemic in Algerian Universities

أصرح بشرفي أنني ألتزم بمراعاة المعايير العلمية والمنهجية ومعايير الأخلاقيات المهنية والنزاهة  
الأكاديمية المطلوبة في إنجاز البحث المذكور أعلاه.

التاريخ: 2023.07.12

توقيع المعني (ة)



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أنا الممضي (ة) أسفله،

السيد (ة) ممادي عبير الصفة: طالب

الحامل (ة) لبطاقة التعريف الوطنية رقم: 200164119 والصادرة بتاريخ: 2016.04.14

والمكلف (ة) بإنجاز مذكرة ماستر،

عنوانها:

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أنا الممضي (ة) أسفله،

السيد (ة) شودار تقوى الصفة: طالب

الحامل (ة) لبطاقة التعريف الوطنية رقم: 106971590 والصادرة بتاريخ: 2017.12.18

والمكلف (ة) بإنجاز مذكرة ماستر،

عنوانها:

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