| **RESEARCH ARTICLE**

Enhancing Students' Satisfaction through Asynchronous Blended Learning in Higher Education: PhD Students at the University of Sidi Mohamed Ben Abdellah as a Case Study

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| **ABSTRACT**

The current study investigates the influence of asynchronous blended learning on student satisfaction among PhD students in the English department at the University of Sidi Mohamed Ben Abdellah, Fes-Morocco. Blended learning, an approach combining traditional and online learning methods, has become increasingly prevalent in higher education. This research addresses two primary questions: the factors influencing student satisfaction and the efficacy of asynchronous blended learning in enhancing learning experiences. Data is collected through a questionnaire administered to 43 students, with both quantitative and qualitative components analyzed. The results reveal a general neutrality among students towards blended learning, with a preference for traditional classroom settings. The study identified several challenges, including technical issues, communication barriers, and difficulties in time management. Despite these challenges, qualitative feedback indicates that students appreciate the diversity and flexibility offered by blended learning. The study concludes that while asynchronous blended learning presents significant advantages, there is a need for improved support and communication to enhance student satisfaction and engagement.

1. Introduction

21st century education incorporates technology into the learning process. In the context of higher education, many courses have presented new learning environments and teaching technologies that rely on information technologies (ICTs), including e-learning, virtual learning, interactive distance learning, games-based learning, and blended learning (Eliveria et al, 2019a). This way, students are able to learn from anywhere, at any time, provided that they have access to a computer, tablet, or smartphone and an e-learning platform (Ziden et al, 2017). Gil et al. (2022a) explain this blurring of boundaries by emphasizing that:

> "Such rich and complex technology-mediated modalities of learning, formal, informal and non-formal; individual and collaborative; face-to-face and online, have been growing intensively during the last decade and have become part of everyday life for young students or lifelong learners. Their common element refers to the blending of different dimensions of learning" (p. 2).

Blending, as a term, originated in biology, where it refers to offspring produced by combining the characteristics of two organisms of diverse breeds, varieties, or species (Gil et al, 2022b). Eyal and Gil (2022) explore some instances in which the term blended is

used in our daily lives and workplaces. In the field of medicine, contemporary medical services are ordered and delivered via digital applications and devices. In the labor market, a trend is emerging in which organizations seek to hire workers working online from the comfort of their homes. These workers can combine technical skills like programming with marketing and financial knowledge. In education, this term refers to educational arrangements that incorporate different modes of learning and teaching (Gil et al., 2022c).

In the literature, there is no clear differentiation between blended education and the other online approaches of instruction (Ulla and Perales, 2022a), such as blended learning. The two terms are often used interchangeably. According to Linder (2017), blended learning is a learning method that relies on technological advancement to tether students with a distanced, yet connected, education environment while also responding to students' learning requirements. Garrison and Kanuka's (2004) definition of blended learning is as follows "a thoughtful integration of classroom face-to-face learning experiences with online learning experiences" (p. 96). Moreover, Garrison and Vaughan (2013) highlighted that "learning designs are informed by evidence-based practice and the organic needs of the specific context" (p. 24). This implies that blended learning is designed with the demands of the context in mind and that instructional designs are centred on the learning experiences of students (Ulla and Perales, 2022b).

Blended learning allows higher education to render the learner in a focal point which offers learners with the space and flexibility to engage in efficient educational activities (Hughes, 2007). The main objective behind this paper is to explore the impact of asynchronous blended learning on student satisfaction. Targeting the English department's PhD students from Sidi Mohamed Ben Abdellah University in Fes-Morocco, this quantitative study addresses a research problem: the factors that have predictive values toward students' academic satisfaction in an asynchronous blended learning environment in which course material is shared in Learning Management Systems (LMS) in the form of PDFs or videos before and after classes. The following are the research questions guiding the study:

1. What factors influence student satisfaction with asynchronous blended learning?
2. How effective is asynchronous blended learning in enhancing student learning experiences?

2. Review of Related Literature
2.1 An Overview of Blended Education
In the early 2000s, blended learning became well-known (Eliveria et al, 2019b). Within related studies, there is no precise definition of the concept. However, there is an overall consensus that it is "a new approach in delivering programs to learners" (Eliveria et al, 2019c, p.1) and that blended courses incorporate features of both traditional face-to-face and online learning styles (Hall and Villareal, 2015). Likewise, Hidayah (2019) defines blended learning as an educational innovation that combines traditional and online learning via sophisticated technological equipment and internet networks. It is a rapidly expanding style of instruction as institutions seek equal and alternate routes to academic enrolment, engagement, and educational success (Gleason and Greenhow, 2017).

A portion of the learning assignments and tasks are converted from the offline classroom to an online one in a blended learning setting (Garrison and Kanuka, 2004). Blended courses are those in which some of the learning activities have been moved online, and time spent in the classroom has been reduced but not totally disregarded (Garnham and Kaleta, 2002). Not only does blended learning take an evolutionary approach to online learning in which students continue to use the familiar classroom environment, but it also provides students with increased flexibility while also trying to maintain a personal relationship with teachers and students in the classroom thanks to the online component (Owston and Murtha, 2013). Nevertheless, Vaughan (2007) contends that blended learning is not achieved simply by transferring teaching materials online but rather by redesigning delivery and pedagogy in addition to providing the opportunity for educational leaders, instructors, and students to explore alternate methods to improving traditional brick and mortar settings (Eliveria et al, 2019d).

2.2 Synchronous and Asynchronous Learning
Blended learning environment (HLE) is a classroom- and computer-based environment that is relatively open and allows for synchronous and asynchronous interactions and encounters with other participants (El-Gayar and Dennis, 2005). Synchronous blended education, according to Martin (2017), is " permanent separation (of place) of the learner and instructor during planned learning events where instruction occurred in real-time such that students were able to communicate with other students and the instructor through text-, audio-, and/or video-based communication of two-way media that facilitated dialogue and interaction" (p. 5). Chow (2013, p. 127) defined synchronous delivery as "two or more people in the same real or virtual space at the same time," based on the seminal variables of space and time. In asynchronous blended learning, students set their learning pace and time (Priess-Buchheit, 2020), which is a factor that promotes learner autonomy. According to California State University, asynchronous blended learning is an instructional model that provides students with increased independence and flexibility in their learning. This

model transitions from an instructor-based learning model to a learner-based model that allows students to study whenever and wherever they please.

2.3 Organizational need for blended education

Higher education institutions are now relying on distance and online education, resulting in a decline followed by an imbalance in the number of students enrolling in higher education institutions each year (Q. Wang et al., 2017). However, lawmakers and professionals sought refuge in blended education to solve the enrolment decline issue. This may attract an even wider population as it appeals to students interested in face-to-face education and studying remotely (Butz and Askim-Lovseth, 2015). Furthermore, relying on blended virtual education makes education accessible to students no matter where they are, making education more inclusive and equal for all students (Bell et al., 2014). Blended education caters to learners' needs at an individual and collective level, enabling learners to rely on experts to foster their knowledge, hence addressing learners' needs. Remote learning provides educators with the ability to teach multiple classes at once, reducing workload and providing teachers with more time to prepare for the classes (Brumfield et al., 2017). Therefore, students have an immense elasticity regarding classroom attendance; there is always the option of virtually attending the classroom as an alternative to traditional classrooms (Lakhal et al., 2017).

2.4 Pedagogical benefits to blended education

From a pedagogical point of view, blended education fills the gap that education lacks the viewpoint of professionals; hence, students can be exposed to experts' knowledge and experience through synchronous and asynchronous learning styles. This act only could broaden students' horizons and bring new ideas and practices to them (Bower et al., 2015). It is worth mentioning that virtually held classes help create the perfect environment for students to strengthen their social skills and aptitude to widen their professional network. Online courses provide students with equal access to knowledge, especially in marginalized categories (Liu et al., 2018). Similarly, asynchronous blended education guarantees continuity of attending classes; hence, a continuum of knowledge acquisition. By not being forced to always be at school, students have more time to develop life-long-learning skills (Weitze et al., 2013).

Asynchronous blended education perfectly balances traditional classes and provides students with extra supporting materials. This supports learners more holistically and accommodates different learning styles. Furthermore, asynchronous learning provides students with more freedom, which results in a greater sense of control over their time (Abdelmalak and Parra, 2016).

Limited is the number of studies that drew comparisons between the efficiency of traditional and online classes regarding variables such as students' outcomes, satisfaction, and motivation. Nevertheless, the studies that compare the two learning styles found that the freedom provided by online classes has little to no effect on students' learning outcomes (Butz and Stupnisky, 2016).

2.5 Asynchronous education to maintain connectivity in times of emergency

Asynchronous online classes call for more active learning and reflection on the course material from students. Hence, the asynchronous approach to education benefits from text-only discussions and video prompts, which proved useful in the COVID-19 general lockdown (Lowenthal et al., 2020).

According to Setera, many educators decided to move to synchronous video learning when the COVID-19 pandemic hit as an alternative to face-to-face education. However, asynchronous classes were found to maintain engagement and classroom activities. Furthermore, asynchronous learning helped accomplish the desired objectives, such as motivating students to participate and developing the habit of learning at one's convenience (Setera, 2020).

2.6 Strengths of asynchronous classes

Continuous development of mobile applications in the past few years fostered asynchronous classes, enabling students to easily and quickly interact with teachers and other students. Furthermore, students who lack social skills and are introverted felt empowered by using asynchronous education, which made students more open about their ideas and insights. Thus, online asynchronous classes proved to be flexible and exercise less pressure to participate in a live conversation, which could be quite challenging for many students (Lowenthal et al., 2020).

2.7 Complex Adaptive Blended Learning Systems (CABLS)

CABLS is an acronym that stands for complex adaptive blended learning system. It is the result of the rapid growth of technology integration into education. CABLS framework seeks to capture the true essence of blended education. Hence, this framework is the aftermath of years of using blended learning as it highlights the fundamentals of blended education and the main components of blended learning as an ecosystem on its own (Y. Wang et al., 2015).

2.8 What does CABLS stand for?

The introduction of technology in education has further complicated learning; hence, C in CABLS stands for complex. The complexity is not limited to adding new features to education, rendering it "complex"; it is rather about the change in the whole education ecosystem. As complex and dynamic education is, a complex theoretical framework is needed to address the growing educational needs (Graham, 2006; Y. Wang et al., 2015).

2.9 Five Fundamental Attributes of CABLS

As mentioned earlier, CABLS is multifaceted and has many key features. The essential characteristics this article focuses on are the following (Cleveland, 1994; Y. Wang et al., 2015):

- **Complexity** reflects the true nature of blended learning systems being interrelated.
- **Self-organization** elements interacting within a system co-exist while giving birth to a new set of patterns, and the cycle repeats itself in an organized manner.
- **Adaptability** demonstrates the procedure of generating an infinite number of rules from a finite number of old rules through different combinations.
- **Dynamism** reflects the system's flexibility and adaptability to changes. Dynamism is being change-prone and non-leaner.
- **The ability to co-evolve** stands for systems being able to develop internally through changes happening to the whole network.

2.10 Cabls As an Ecosystem

Complex adaptive blended learning system (CABLS) is a framework comprising six sub-set categories that co-function as one system and its functions on an individual level. Each subcategory has unique functions, depending on other components to function properly. In addition, the previously mentioned subsystems have their subsystems, all dynamically interacting with one another, forming a blended learning system. Figure 1 presents the six main components of a blended learning system (McGEE and Poojary, 2020).
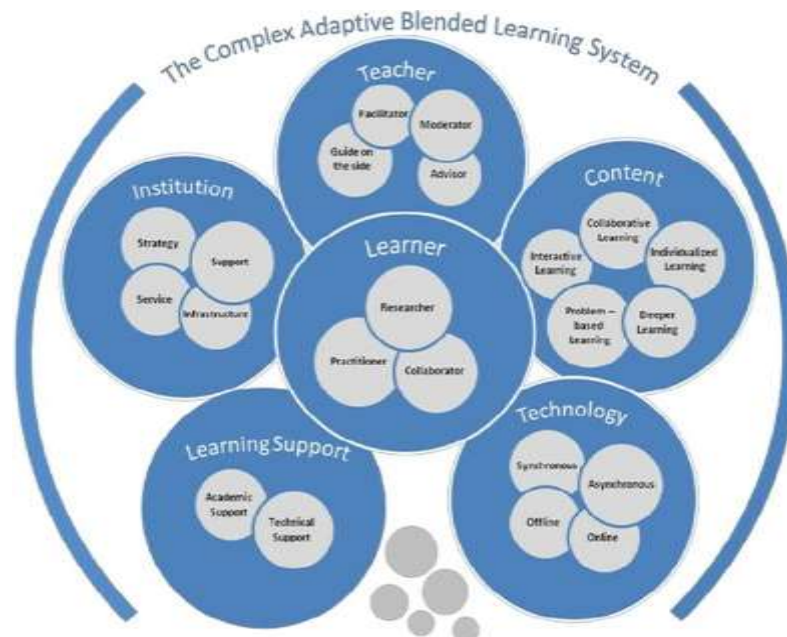

Figure 1 The Framework of Complex Adaptive Blended Learning Systems (CABLS)

2.10.1 Learner

Learners evolve simultaneously with the other subsystems, fully immersed in the blended learning system. They are in an active transformation status, turning from passive learners into active parties in the learning process (Y. Wang et al., 2015).

2.10.2 Teacher

Teachers in blended learning contexts give in their identity and adopt new titles such as moderators, facilitators, and classroom advisors. They take charge of helping students adapt to the new learning environment (Salmon, 2004).

2.10.3 Content

Content is the glue that bonds all components together in a well-cohesive manner. Content nowadays is more engaging, interactive, and fluid; it takes the format of the platform used in learning (Singh, 2021; Y. Wang et al., 2015).

2.10.4 Technology

Complexity is one of technology's main features, so it embodies the platform and the content. The technology ensures sustainability in any learning system by creating communication channels between all subsystems (McGEE and Poojary, 2020; Y. Wang et al., 2015).

2.10.5 Learning support

Supporting learners is beneficial in ensuring that students are the focal point of the knowledge acquisition process. CABLS framework highlighted the importance of supporting learners at all levels using all available means (Rafi et al., 2022; Y. Wang et al., 2015).

2.10.6 Institution

Blended learning systems have long been viewed as extra resources for classroom learning. However, the institution as part of CABLS subsystems sheds light on the legislative aspect of integrating blended learning as an autonomous learning style (Graham et al., 2013; Y. Wang et al., 2015).

3. Methodology

This study took place at the Faculty of Letters and Humanities Dhar El Mahraz-Fes in Morocco. The population chosen for the study is the faculty's English department PhD students, as they were the most accessible to the researchers. The asynchronous blended courses students took were sent to them before and after classes in the form of PDFs and videos by their professors via email or Moodle platform. The sample includes 43 students enrolled in the academic year 2022-2023, representing 15% of the whole population.
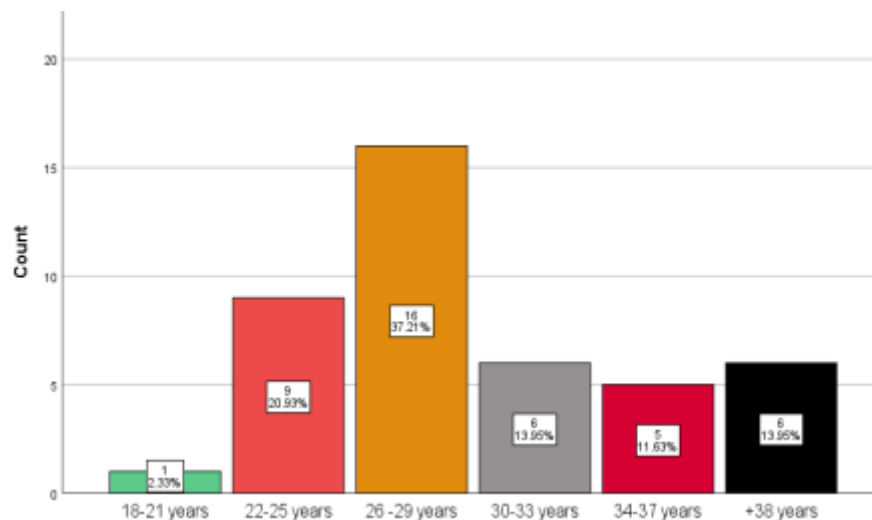

Figure 2 Age Distribution of the Study Sample

The chart above shows that participants of this study were aged from 18 to 38+ years. The youngest respondent is a young adult of 18-21 years old. Sixteen participants are aged between 26 and 29 years old, 9 of them are 22-25 years old, and 17 are in their early to late thirties.
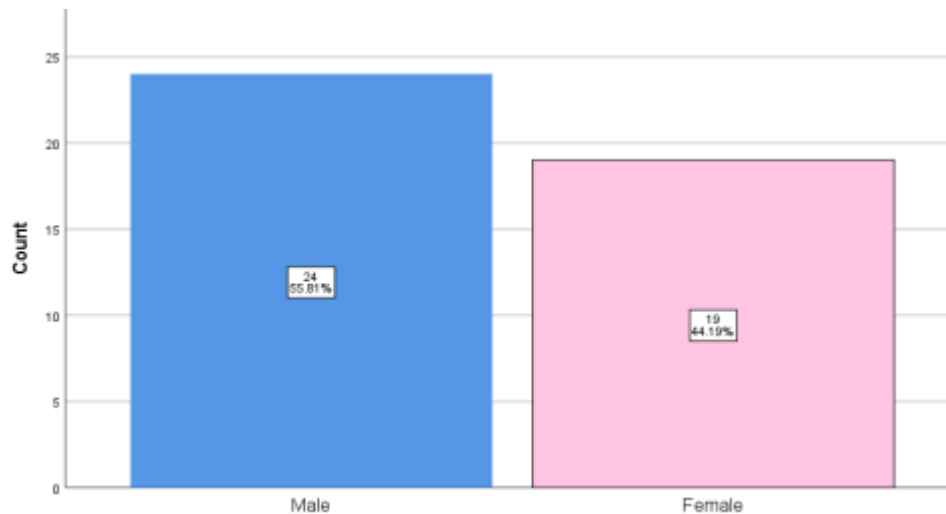
Figure 3 Gender Distribution of the Study Sample

The figure represents the gender distribution of the study sample. Male dominance was observed among the participants of this study. Twenty-four males and 19 females took part in this investigation.
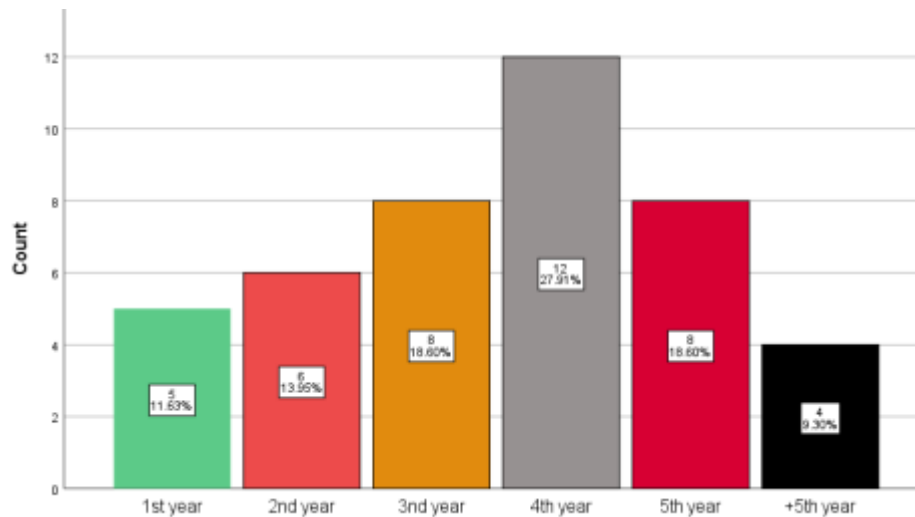

Figure 4 Distribution of the Sample by PhD Year

The chart depicts the distribution of PhD students by doctoral year. The majority of them are in their 4th year, representing 27.91% of the sample. First, second, and third-year doctoral students mirror 11.63%, 13.95%, and 18.60% of the sample, respectively. The doctoral program's seniors (5th and +5 years students) appear to embody almost 27% of the participants of this study.

3.1 Research Design

English language major PhD level students receive online courses parallel to face-to-face classes. The online resources students receive are interactive PowerPoint slides, video and audio recordings, and quizzes. This approach of mixing two different learning styles appeared during and after the major lockdown due to the COVID-19 pandemic. The study assesses PhD students in terms of performance in online classes and overall perception of blended classes based on attributes and characteristics of the two studying environments.

3.2 Data Collection and Measurement

To collect data, the instrument this paper relied on is a questionnaire, which was administered online and disseminated among the participants via their email addresses, Facebook, and WhatsApp groups. The questionnaire is adopted from two studies on blended education (Sherill and Truong, 2010; Lin, 2008) and piloted among 15 participants.

Data used in the current study is collected from 43 students to ensure the representativeness of the sample and the general population. The study relies on a questionnaire combining two data sets and 18 items of a five-point Likert scale measurement method and two open-ended questions for contextual feedback and further insights.

Reliability Statistics

Cronbach's Alpha	N of Items
.920	18

Table 1 Reliability Test for the Questionnaire

3.3 Data Analysis

The data is analyzed using SPSS to calculate the mean and standard deviation. The open-ended questions were analyzed using Atlas software following thematic analysis.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The instructor clearly communicated what I was expected to learn	43	1	5	3.21	.965
The instructor made the relevance of the course material clear	43	1	5	3.19	.982
The course was well organized	43	1	5	3.33	1.063
There was a positive interaction class and instructor	43	1	5	3.16	.949
The instructor teaching helped me understand course	43	1	5	3.16	1.132
The instructor clearly explained what was expected	43	1	5	3.14	1.060
The instructor kept me informed about progress	43	1	5	3.07	1.242
The feedback I received gave me the opportunity to improve	43	1	5	3.07	1.078
The course material was presented	43	1	5	3.00	1.000
Valid N (listwise)	43				

Table 2 Descriptive statistics of PhD students' satisfaction with the instructor during blended classes

The table above displays the means and standard deviations of section 1 of the questionnaire: "Satisfaction with the instructor during blended classes." With a mean of 3 and a standard deviation between 1 and 0.9, our study's participants are mostly neutral vis-à-vis this section's items of the questionnaire, with a significant variability of students' responses. This could be due to how the questionnaire items were interpreted, perceived, or understood by the PhD students.
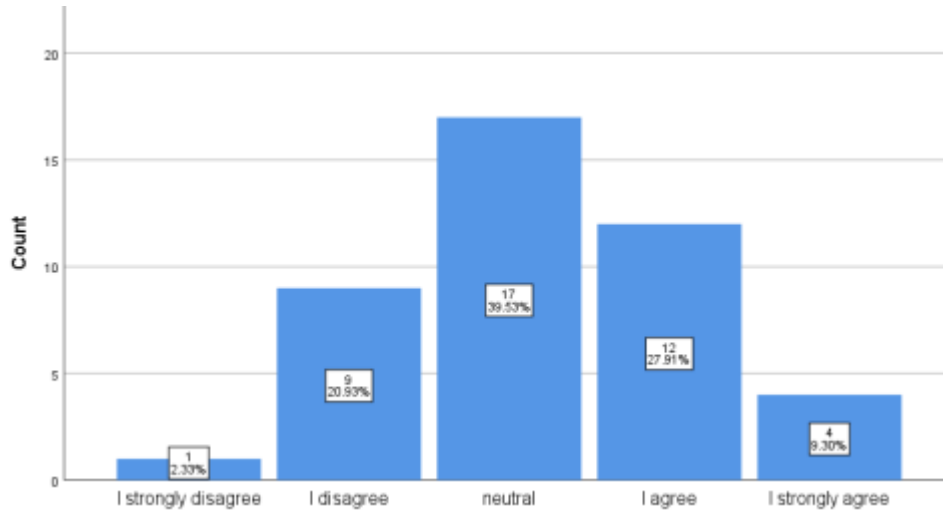
Example 1:

Figure 5 PhD Students' insights on the correctness of the instructor's communication skills

Example 2:
The chart above represents participants' views in regard to the instructor clearly communicating what they were expected to learn. The data indicates that one respondent strongly disagrees with this item of the questionnaire, while nine also disagree with this statement. Seventeen participants were neutral vis-à-vis this issue, 12 agreed with it, and four strongly agreed that the instructor clearly communicated what they were expected to learn.
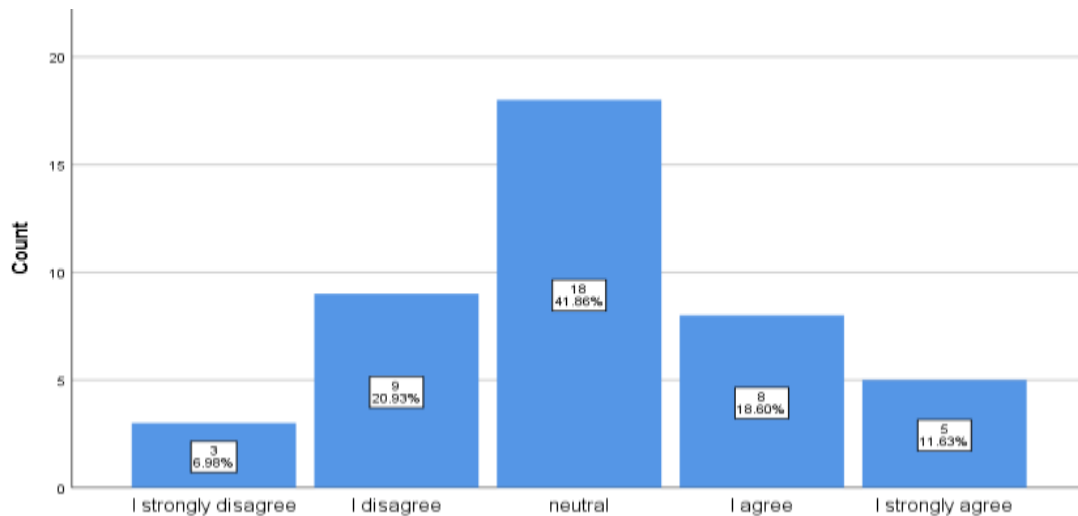

Figure 6 PhD Students' perception of the feedback received and whether it improves the performance

Example 3:
Regarding the feedback students receive to improve their performance, the chart illustrates that the majority of respondents opted for the neutral option, suggesting some level of uncertainty from their end. Twelve students disagree to strongly disagree with this questionnaire's item, while 13 other participants agree to strongly agree with it.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
I would like all of the course lectures to be presented online	43	1	5	2.53	1.351
Online educational experiences are as intellectually stimulating	43	1	5	2.58	1.258
Online assignments were helpful in understanding	43	1	5	3.23	1.088
The online course materials were easy	43	1	5	3.14	1.104
The connection between what I did online	43	1	5	3.23	1.130
I found participating in the online discussion board useless	43	1	5	2.74	1.157
I could control the pace of my own learning	43	1	5	3.12	1.313
I did not have any difficulty managing my time for the	43	1	5	3.23	1.250
I would recommend taking blended courses to a friend	43	1	5	3.49	1.279
Valid N (listwise)	43				

Table 3 Descriptive statistics of PhD students' satisfaction with the learning materials during blended classes

The table indicates that there is an inclination towards neutrality or disagreement, but there is also great variability in the standpoints of the doctoral students, as noted in the three items with a mean of 2 and a standard deviation that ranges from 1.1 to 1.3.
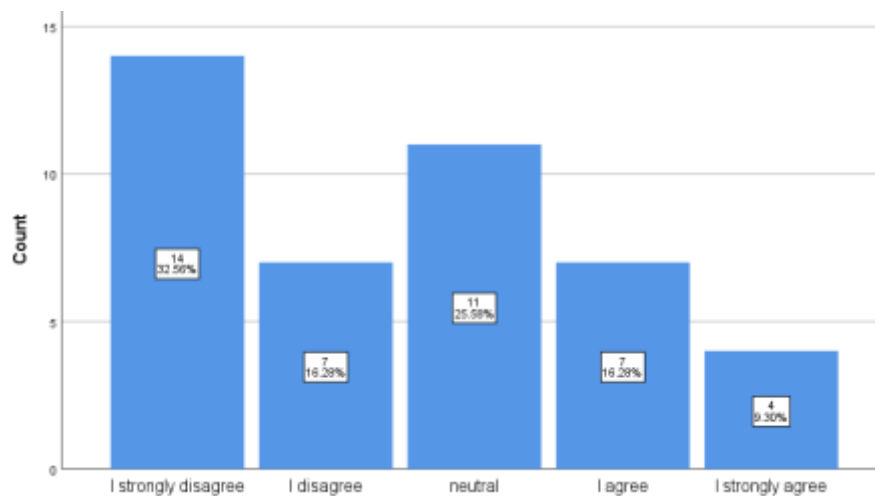
Example 1:

Figure 7 PhD Students' opinion on switching to online classes rather than mixing both teaching methods

The figure shows how the students feel about lectures being presented online rather than in class. 14 out of 43 doctoral students strongly disagree with this statement, and seven disagree with it. However, 11 participants were neutral. Not only did seven students agree that their course lectures should be online rather than in class, but 4 of them also strongly agreed with this switch to the connected world.
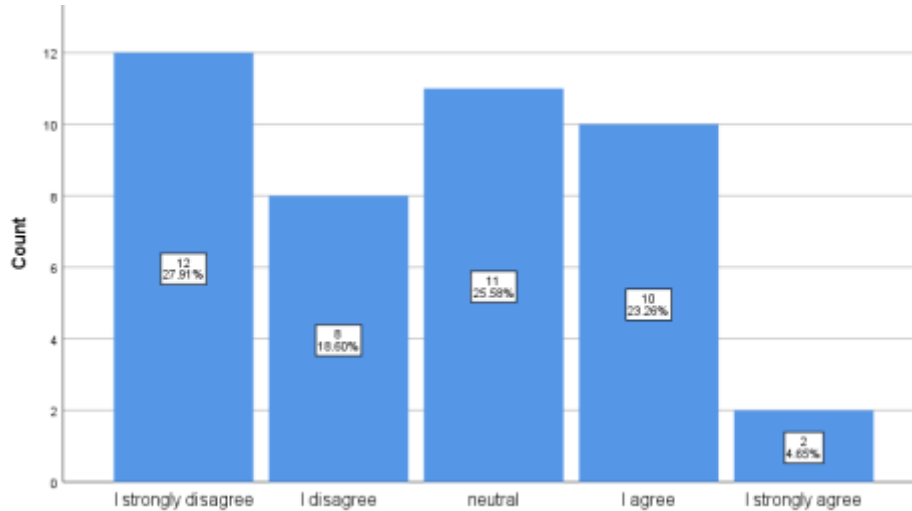
Example 2:

Figure 8 PhD Students' opinion on online classes being intellectually stimulating

The chart illustrates doctoral students' views of online educational experiences being as intellectually stimulating as traditional classrooms. While 20 students strongly agree to disagree with this statement, 12 participants think differently and go on to agree and strongly agree with the mentioned claim. Eleven students remain neutral amid these conflicting points of view.

3.4 Qualitative Data

Figure 9 Word Cloud Representing Most Used Words During Open Ended Questions

3.5 Quotes

• "it was really good, though novel. We got to experience blended learning for the first time and it was exciting."

• "Great experience, the human mind loves diversity"

• "It was very interesting to experience"

• "It is an exciting experience"

• "Smooth sailing"

• "it was a satisfying and fulfilling experience"

For the qualitative data, students are generally satisfied with the experience as a whole, and most of the adjectives used reflect the positive projections they had during the blended learning classes.

3.6 Qualitative data thematic analysis

Through the thematic analysis of qualitative data, 8 themes emerged:

1. Technical Challenges and Connectivity Issues:

Respondents expressed concerns about technical challenges, such as bad internet connections, especially for those in rural areas.

2. Communication and Feedback:

Lack of clear communication and feedback from instructors was highlighted as a concern, both in face-to-face interactions and online formats. This includes issues with receiving timely responses and understanding the relevance of the course content.

3. Time Management and Workload:

Participants mentioned difficulties in managing time and completing assignments on schedule. Some felt overwhelmed by the workload, indicating a need for better organization and support in balancing academic responsibilities.

4. Engagement and Motivation:

Concerns about staying engaged and motivated in the blended format were prevalent. Participants cited distractions, lack of attentiveness, and difficulty in remaining actively involved during online sessions.

5. Access and Equity:

The theme highlights disparities in access to resources and support, with particular emphasis on the digital divide. Participants expressed concerns about unequal learning environments and the need for accessibility for all students.

6. Instructional Design and Format:

Issues related to the design and format of the course materials were mentioned, such as reliance on PDFs, lack of user-friendly apps, and absence of interactive elements. This theme underscores the importance of adaptable and engaging course design.

7. Support and Interaction:

Participants expressed a need for greater support, interaction, and engagement with instructors and peers. The absence of teacher-learner interaction, as well as insufficient support for students lagging, were highlighted as concerns.

8. Resistance to Change and Adaptation:

Some respondents indicated resistance to the blended learning format, citing difficulties in adapting to new methods and technologies. This theme suggests a need for strategies to address resistance and promote acceptance of new learning formats.

4. Results and Discussion

The results of this study revealed students' attitudes towards blended education. Two research questions were asked to measure students' blended education experiences, focusing on factors that influence student satisfaction with this mode of learning and the efficiency of asynchronous blended learning in enhancing students' learning practices.

Overall, the quantitative data said two things about the respondents: First, they don't know how to feel about the blended learning courses since most of the answers to the questionnaire items are neutral. Second, according to the study sample, traditional education remains superior to blended learning, and the latter could never replace the classroom. Reflecting on the communication and the feedback received from the professor, most of the respondents are neutral, but when asked about learning online and whether the online learning experience is stimulating to them, the overall sentiment to their answer is negative. These findings suggest that they don't want to study all courses online and mostly don't find studying online brain-tickling. To back up these results, the survey included two open-ended questions that enriched the study with qualitative data. Following a thematic analysis of the data, eight themes emerged. Though students' quotes reflect the positive projections they had during the blended learning classes, the doctoral students were also able to voice the issues and obstacles they faced that might've hindered an otherwise ideal experience of blended education, some of which include lack of communication and clear feedback and absence of interactive elements in instruction methods.

These findings are consistent with several studies that argued that students lean toward traditional modes of education. A comparative study conducted by Cranfield et al. (2021) also revealed that Welsh and South African students favoured face-to-

face teaching and learning. Our results are similar to those of the study of Besser et al. (2020), whose findings conclude that traditional face-to-face learning is commonly preferred over online learning modes. This study's findings are, however, different from those of a survey conducted by Zeqiri et al. (2021), who found that blended learning positively impacts student satisfaction in a sample of 319 students in Macedonia.

5. Conclusion

As technology continues to occupy the higher education realm, it is crucial to investigate students' attitudes toward blended classes, provide insights into the effectiveness of the blended method, and explore potential enhancements of asynchronous blended learning environments. The purpose of this paper is to examine the impact of asynchronous blended learning on student satisfaction. The findings indicate that the sample of PhD students lean towards face-to-face teaching over blended learning. They also tend to think that traditional instruction is more brain-simulating. The reason behind this overall dissatisfaction with blended teaching and learning mode is closely related to students' encountering challenges such as lack of motivation, support, and feedback.

Future research is essential to explore the long-term impact of blended education on student satisfaction and to identify best practices for its implementation. The study's limitations include focusing solely on a small sample of English department's students. It is recommended to take into account adding other departments in order to generalize findings among learners belonging to different domains.

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