Bridging the gap: Student perceptions of blended learning's promise and reality in higher education

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ABSTRACT

This study investigates students' perceptions of their learning experiences in a blended learning environment. It seeks to describe: 1) students' perceived learning effectiveness in blended learning, 2) key aspects of blended learning contributing to learning effectiveness, and 3) problems and constraints in blended learning. A cross-sectional survey design was employed, targeting undergraduate students from six departments and three different semester cohorts who had experienced blended learning. With a population of approximately 6.000 students, a sample of 509 students was selected using stratified random sampling to ensure proportional representation across departments and cohorts. Data were collected through a structured questionnaire and analyzed using descriptive statistics. Results indicate that while 60% of students strongly valued the flexibility to access materials anytime/anywhere, fewer than 40% reported effective self-paced learning or study planning. Interaction and collaboration were limited (25–38% agreement), and perceived impacts on motivation (27–35%) and material understanding (26–27%) were modest. Technical ability varied, with only 24% feeling highly competent in platform feature usage. Overall satisfaction was low (29%), aligning with suboptimal active engagement, interaction/collaboration, and perceived impacts. Findings suggest that blended learning implementation at this institution did not fully realize its potential for autonomy, collaboration, or enriched outcomes, highlighting the need for improved pedagogical design, user-friendly technology, and strategies to foster critical dialogue and self-regulation.

INTRODUCTION

Higher education institutions are considered pioneers in implementing blended learning, whether for individual subjects or degree/non-degree programs. A report from Straits Research (2024) highlights that 63% postsecondary institutions in the U.S. were offering blended learning programs by 2023, while around 68% of China's higher education offering blended learning programs by 2024. Arabasz & Baker (2003) identified a pattern where the percentage was higher among public institutions offering blended learning compared to private ones. The overall trend

indicates that blended learning implementation in higher education will continue to increase yearly in Western and Asian countries (Guppy et al., 2022; Tonbuloğlu & Tonbuloğlu, 2023). According to Garrison & Vaughan (2011), data on the growth trend of blended learning adoption in higher education is driven by increased awareness that blended learning can significantly enhance learning processes and outcomes.

In this context, higher education institutions need to provide learning experiences that actively engage students in acquiring quality academic and/or professional competencies (Anthony et al., 2022; Asmawi, 2005; Balakrishnan et al., 2021). Face-to-face learning, typically lecture-based, which has long dominated classroom practices, has been widely criticized as "impersonal" and ineffective for facilitating higher-order learning or more meaningful experiences, such as developing analytical critical thinking, problem-solving, and collaboration skills (Garrison & Kanuka, 2004; Garrison & Vaughan, 2011; Vo et al., 2017; Yu et al., 2025). Blending the potential of information, communication, and technology (ICT) facilities into face-to-face classrooms is believed to enrich and enhance learning processes and outcomes. Blended learning is generally understood as a teaching and learning modality combining online learning with direct face-to-face classroom instruction. Garrison & Vaughan (2011) defined blended learning as a teaching program that pedagogically integrates online learning into traditional face-to-face classrooms, where some face-to-face activities are replaced with online learning activities. Several blended learning models have emerged from implementation practices in higher education.

The first model, representing the traditional form of blended learning, is classroom teaching mediated by technological devices, typically computers and the internet (Freeman & Johanson, 2006). The second model combines face-to-face meetings and internet-based teaching, reducing face-to-face meeting durations to facilitate online learning or other online activities (Caner, 2012; Hoic-Bozic et al., 2008). According to Ocak (2011), in this model, direct face-to-face activities like lectures or instructor explanations are usually replaced with online formats (e.g., watching videos). The third model emphasizes integrating online learning into face-to-face classroom learning based on pedagogical utility. This means synchronous and asynchronous components of teaching and learning depend on pedagogical needs/goals and technological availability (Hoadley, 2009; Picciano, 2009). The fourth model views blended learning as using technology to complement face-to-face learning without reducing its duration or intensity (Mitchell & Forer, 2010). In this model, learners can choose to participate in online activities or attend face-to-face classes without reducing or eliminating either activity type. The final and widely used model is known as the flipped classroom. This blended learning model begins with online materials or activities followed by face-to-face meetings (Howitt & Pegrum, 2015).

Blended learning may sound simple, but it is also complex. At a basic level, educators see it as combining, integrating, or complementing classroom (offline) and digital online learning experiences. At a more advanced level, blended learning presents significant implementation challenges due to potentially limitless designs and applications, as well as diverse contextual implementation requirements (Garrison & Kanuka, 2004). Akyol et al., (2009) stated that blended learning is not easy to create, as a poorly designed blended learning environment can result in unsatisfactory learning experiences or unintended outcomes. Lim et al., (2019) warned that "in practice, it is complicated to implement", with issues ranging from aligning vision, infrastructure, staff capacity, and course redesign. Designing blended learning requires fundamental changes in concepts, the organization of teaching and learning dynamics, starting with diverse needs, and contextual contingencies such as discipline, developmental level, and resources (Garrison & Kanuka, 2004).

In blended learning literature, several potential advantages have been identified. With internet and technology facilitation, flexibility and accessibility are primary advantages of blended learning. Instructors have significant freedom to select and adapt materials and activities for both classroom and online settings (Howitt & Pegrum, 2015). Learners can access materials and activities anytime and or review, repeat, or move to other materials/activities at their own pace (Birbal et al., 2018; Fleck, 2012; Kaur, 2013). Blended learning fosters learner autonomy and personalization by allowing students to choose how, when, and where they engage with content. Chen (2022) found that learners

perceived blended learning as an effective way to develop their learning autonomy. Similarly, Waqqar et al., (2020) reported enhanced soft and management capabilities of health profession postgraduate students through the development of self-directed learning in a blended learning environment. Blended learning promotes autonomy and personalization in teaching and learning.

The power of the internet and technology to connect individuals strengthens cooperation or collaboration in a blended learning environment. Utilizing technology-based communication features or applications like email or social media platforms (e.g., Facebook or WhatsApp) enables close and intense online interaction among learners and between learners and teachers/lecturers. These platforms promote both synchronous and asynchronous engagement, allowing students to exchange ideas, seek feedback, and support one another across time and space. Lam (2015) reported that online collaboration through these social media networks often occurs through learner self-initiation rather than designed activities or instructor requests. Shaqour (2014) reported that blended learning facilitates interaction between male and female students through online forums, which may not occur in face-to-face settings in certain Arab contexts. Online interaction can be even more intensive with Learning Management Systems (LMS) like Moodle, as learners can communicate anytime and anywhere (Gil & García, 2011).

Digitally presented learning materials and activities promote active learner engagement. Based on the evaluation of the implementation of the "Professional and Creative Writing" course for two years, Freeman & Johanson (2006) reported that the assignments presented through blended learning effectively encourage students to make a series of writing revisions, based on improvement suggestions from both peers and editors. Generally, it is found that learners in blended learning are motivated to try new things, learn differently, learn from peers, and enthusiastically complete assignments and review supplementary materials provided by teachers/lecturers (Hoadley, 2009; Kintu & Zhu, 2016). Even when blended learning does not significantly impact learning outcomes, it creates higher cognitive engagement due to interactive technology use (Yang, 2016). In addition, according to Garrison & Kanuka (2004), blended learning facilitates the emergence of a "community of inquiry" where learners can freely and openly dialogue, debate critically, negotiate, and reach agreements, fostering reflection born from these dialogues. As stated by Hudson (2002), critical thinking is rooted in dialogue within a social context to cultivate meaningful ideas. Thus, interactive and diverse dialogue in blended learning promotes higher-order or critical thinking.

Regardless of the model applied, blended learning is considered successful if it enhances learner effectiveness. Learning effectiveness is a function of or result of effective pedagogical practices (Joy & Garcia, 2000). Therefore, technology use or integration into learning environments does not automatically improve processes or enhance learning outcomes. In principle, the expected learning effectiveness in blended learning is similar to other modalities, though potentially richer and stronger processes and outcomes are possible. Grades (cognitive outcomes) and attendance (participation) are commonly used frameworks for learning effectiveness in blended learning research (Anthony et al., 2019; Bouilheres et al., 2020; Bowyer & Chambers, 2017). However, social and emotional aspects like self-regulation, autonomy, or empathy are also crucial indicators of learning effectiveness in blended learning (Birbal et al., 2018; Broadbent & Fuller-Tyszkiewicz, 2018; Ustun et al., 2023; Vo et al., 2020). This research contribution is useful for improving the implementation of blended learning in higher education. This becomes one of the focuses of the study reported in this paper. To guide the study, the following research questions (RQ) are put forward:

RQ1: How do students perceive blended learning about their learning effectiveness?
RQ2: Which aspects of blended learning build students' learning effectiveness?
RQ3: What are the problems and constraints faced in blended learning courses?

METHOD

Research Type and Design

This research is quantitative. Following quantitative research traditions, its primary aim is to explain the opinions, attitudes, or behaviors of a sample or population towards specific phenomena, events, or social activities. To achieve this, the study uses a cross-sectional survey design (Creswell,

2008). A cross-sectional approach is used because it allows the collection of data from students across three different semesters at a single point in time, enabling efficient comparison of experiences and perceptions without the need for repeated measurement or longitudinal tracking. Data was collected simultaneously from respondents via a questionnaire to capture: student perceptions of blended learning implementation regarding learning effectiveness, aspects contributing to effectiveness, and problems/constraints in implementation.

Population and Sample

The population comprised all students from six departments in the Faculty of Education, Makassar State University. The sample, a subgroup of the target population, was selected for generalization. Given varying student numbers per department and level, stratified sampling ensured proportional representation of each department. The target sample size was 600 respondents (10% of active students).

Data Collection

Data was collected via a 32-item questionnaire divided into seven dimensions, such as personal data, blended learning experience, ability to perform blended learning activities, and satisfaction with blended learning. A Likert scale measured responses (Strongly Disagree to Strongly Agree, Highly Incompetent to Highly Competent, and Very Dissatisfied to Very Satisfied). The questionnaire was distributed online via Google Forms. The survey-item specification is shown in Table 1.

Table 1. Survey-Item Specification

No.	Dimensions	Indicators/Measures	Item No.	Total
1	Respondent Data	Department, semester, gender	1, 2, 3	3
2	Flexibility & Accessibility	Freedom to study anytime, anywhere	4, 6	2
		Freedom to study at own pace and understanding level	5,7	2
3	Interaction & Collaboration	Intensity of interaction/dialogue with peers and/or lecturers	8, 9, 15, 16, 17	5
4	Active Engagement	Blended activities encourage active class participation & task completion	10, 11, 12	3
5	Impact of Blended Learning	Motivation and learning facilitation	13, 14, 19	3
		Understanding course material	18, 20	2
6	Ability to Perform Blended Activities	Using features to access, communicate, and complete tasks	21, 22, 23, 24	4
7	Learning Experience Satisfaction	Adequacy, suitability, and variety of materials/activities/assignments	25, 26, 29	3
		Clarity of instructions and activities	27, 28	2
		Instructor's activeness and teaching quality (including feedback)	30, 31	2
		Overall satisfaction with the learning experience	32	1
Total				**32**

Data Analysis

Data was analyzed using descriptive statistics to summarize and simplify data with measures like mean, frequency, percentage, and central tendency (Gravetter & Wallnau, 2007). Data was presented in tables, graphs, and diagrams to illustrate respondent characteristics, attitudes, opinions, and perceptions of research variables. Nominal and ordinal data were calculated using the frequency measure Formula 1.

$$P = \frac{f}{N} \times 100\% \tag{1}$$

Information:

f   = Frequency for which percentage is calculated
N   = Total frequency used as data
100% = Constant value

RESULTS AND DISCUSSION

Results

This research captured perceptions of third, fifth, and seventh-semester students regarding their blended learning experiences in completed or ongoing semesters. 509 students from six departments in the Faculty of Education, Makassar State University, completed the survey conducted over three months. Respondent distribution by department and semester is shown in Figure 1. Subsequent findings are presented based on the dimensions forming the constructs of the survey items.
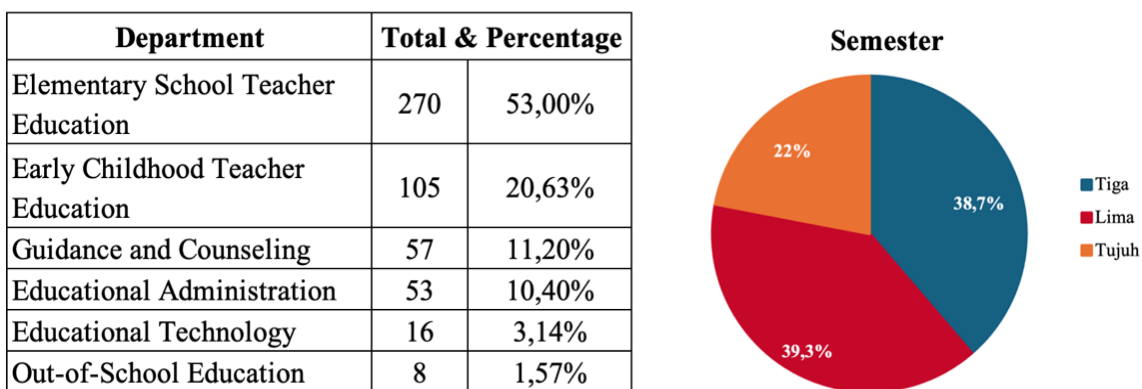
Department	Total & Percentage	
Elementary School Teacher Education	270	53,00%
Early Childhood Teacher Education	105	20,63%
Guidance and Counseling	57	11,20%
Educational Administration	53	10,40%
Educational Technology	16	3,14%
Out-of-School Education	8	1,57%

Figure 1. Respondent Distribution

Flexibility and Accessibility

Online materials on the blended learning platform provided students with time and place flexibility to study and review the not fully understood course materials. As can be seen in Figure 2, approximately 60% of respondents strongly agreed they could learn and review prepared materials anytime and anywhere. However, although blended learning was acknowledged for providing flexibility and accessibility, less than 40% strongly agreed that 1) it facilitated learning at their own pace, and 2) it made them plan time to study the materials. Flexibility and accessibility for accessing materials/tasks were perceived as a primary advantage of blended learning, but this did not necessarily lead students to plan their study according to their own pace and time availability.
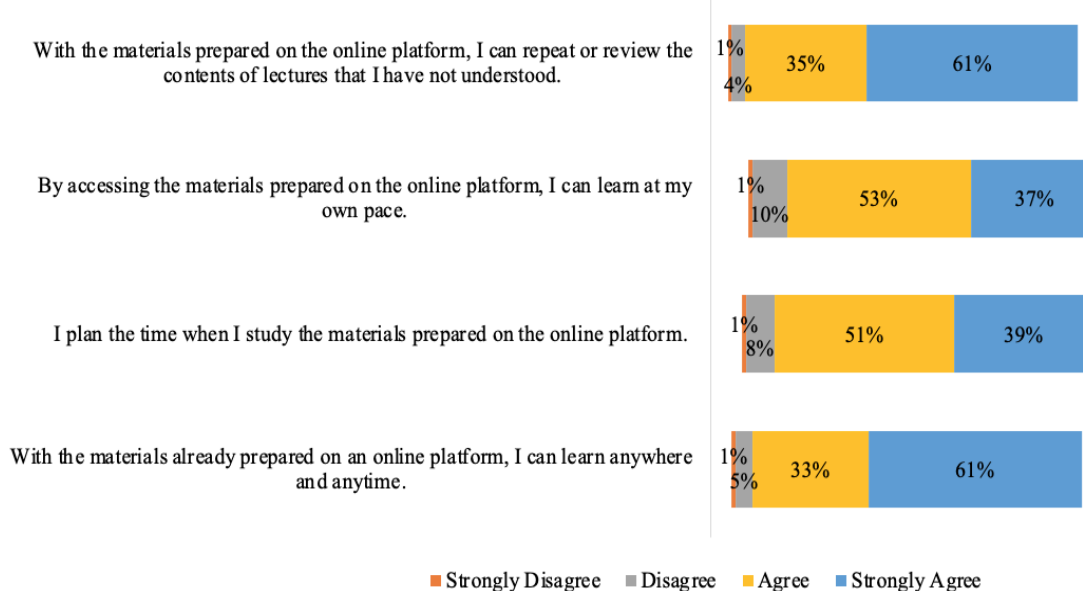

Figure 2. Perception of Flexibility and Accessibility

Interaction and Collaboration

Five items assessed students' perceptions of interaction and collaboration in blended learning. Two items measured the frequency of student-student interaction (dialogue/discussion), and one item measured student-lecturer interaction frequency. Regarding student-student interaction frequency, Figure 3 shows that only about 30% strongly agreed that blended learning increased dialogue/discussion frequency. Responses were lower for student-lecturer interaction (25%). Collaboration was represented as the need to cooperate and seek peer help in completing activities/assignments. 34% and 38% of respondents strongly agreed they felt a need for peer help and that blended learning encouraged cooperation in completing activities/tasks, respectively.
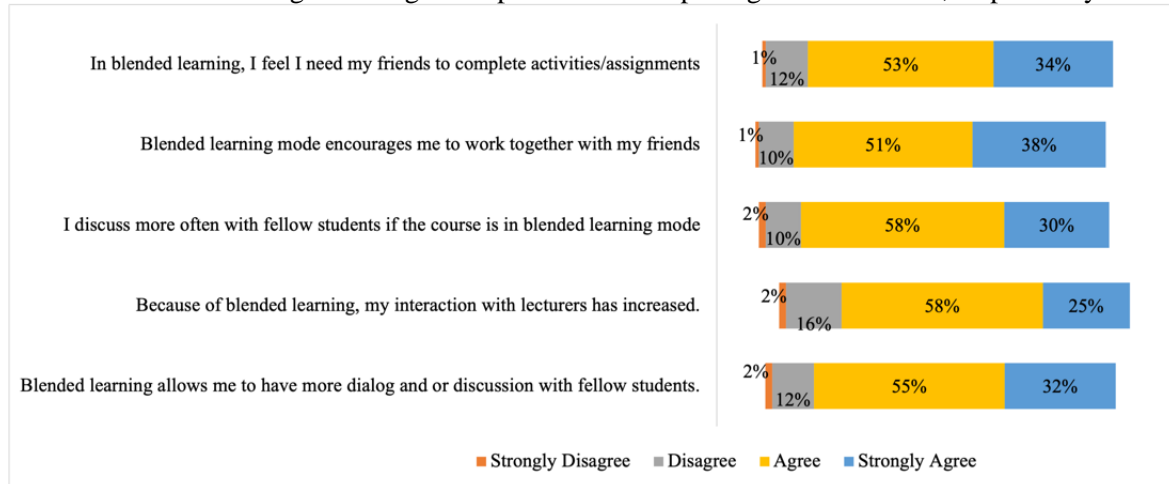

Figure 3. Perception of Interaction and Collaboration

Active Engagement

Active engagement was represented as the willingness/effort to participate in course activities, complete assignments, and seek help related to courses/tasks in online or offline sessions. Three survey items aimed to gauge perceptions of whether blended learning made students more active. As shown in Figure 4, less than 30% strongly agreed that online activities encouraged active participation in synchronous classes. However, 42% strongly agreed they felt more effort to complete tasks, and 44% strongly agreed they sought help when facing difficulties in blended learning tasks.
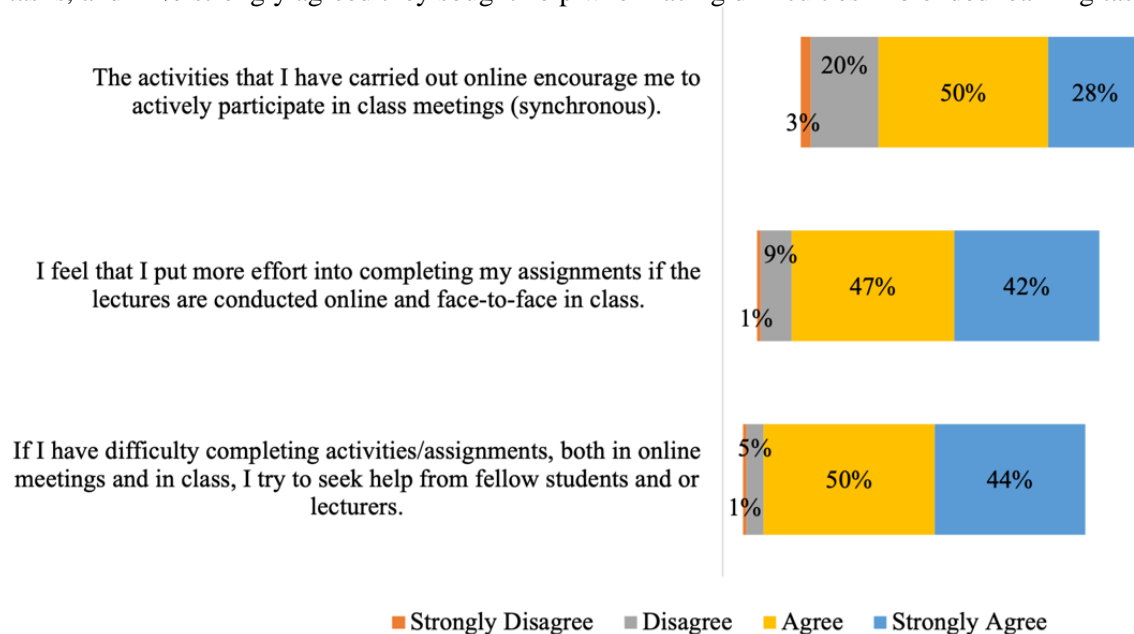

Figure 4. Perception of Active Engagement

Impact of Blended Learning

Respondents' perceptions of blended learning impact were measured through two indicators. The first indicator assessed motivation and learning facilitation (three statements). The second indicator assessed understanding of course material (two statements: increased material understanding and helpfulness of online materials/tasks). Figure 5 shows that the percentage of respondents strongly agreeing with blended learning to motivate them and to facilitate their learning ranged between 27% and 35%. Only 27% strongly agreed they understood the material better with the blended system, while 26% strongly agreed they felt online materials/tasks helped them understand course content.
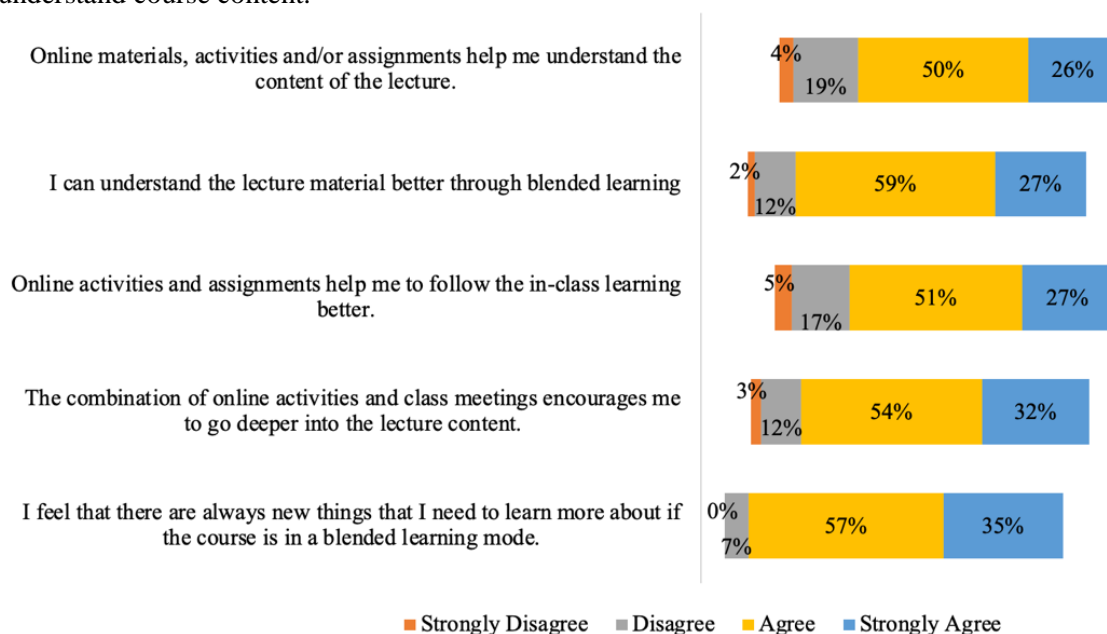

Figure 5. Perception of Impact of Blended Learning

Ability to Perform Blended Learning Activities

This research also explored student' perceptions of their ability level to perform online/offline activities and use blended learning platform features (Figure 6). Respondents generally reporting very high ability in using platform features were only around 24%. A bit lower percentage (23%) reported very high ability in communicating via platform features. Slightly higher percentages were seen for the ability to access materials and complete tasks on the online platform, with over 40% reporting very high ability in each.
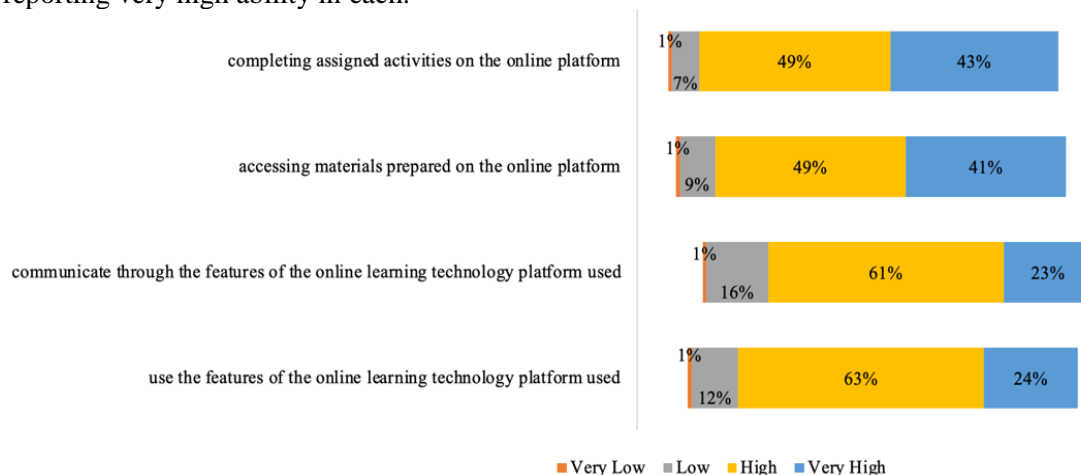

Figure 6. Perception of Ability to Perform Blended Learning Activities

Satisfaction with Blended Learning Experience

The final survey section assessed student satisfaction with the blended learning experience. Three main indicators were used: 1) Adequacy, suitability, and variety of materials/activities/assignments, 2) Clarity of instructions and activities, and 3) Instructor quality (teaching and activeness in providing feedback). One item measured overall satisfaction. Figure 7 shows that respondents reporting very high satisfaction with indicator one ranged from 28-29%. For indicator two, around 30% were very satisfied. For indicator three, 35% and 32% were very satisfied with the quality of online/offline teaching and instructor activeness in providing feedback, respectively. Overall, only 29% reported being very satisfied with their blended learning experience and outcomes.
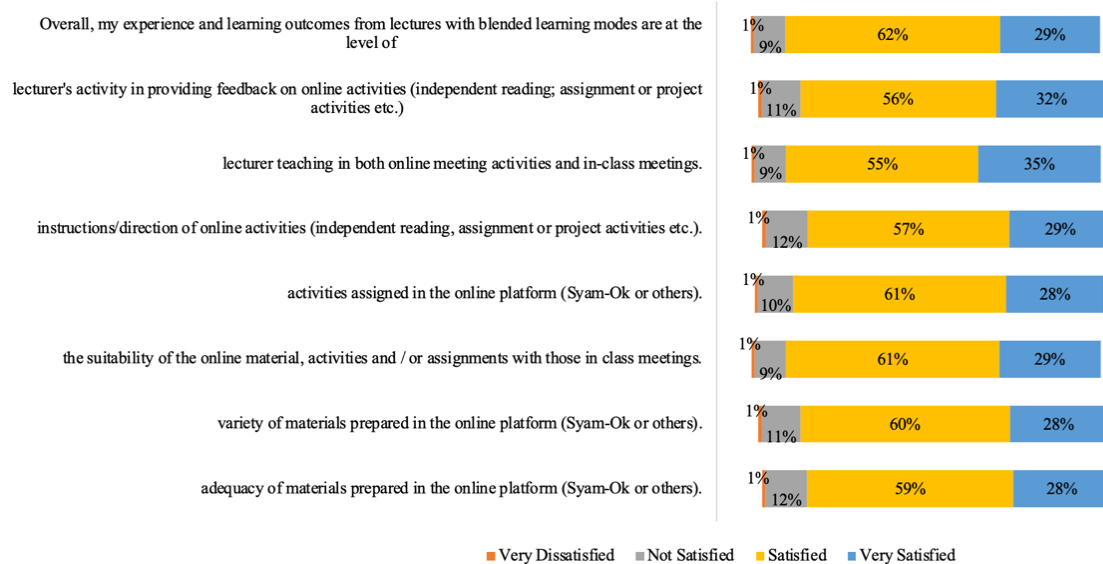

Figure 7. Perception of Learning Experience Satisfaction

Discussion

The results presented show diverse findings across the seven dimensions of student learning experiences in blended learning at the Faculty of Education, Makassar State University. Some findings even differ from previous research. These varied and contrasting results are discussed below and organized in accordance with the three research questions of the study.

Student Perceptions of Blended Learning's Relation to Learning Effectiveness

The commonly identified main advantage of blended learning is the ease and convenience for learners to access course materials and activities anytime, anywhere. This advantage was strongly felt by the majority of students in this study. Howitt & Pegrum (2015) asserted that this flexibility and accessibility should foster autonomy and personalization for instructors and learners. Learner autonomy/personalization includes planning study time and activities to review material at their own pace or understanding level (Birbal et al., 2018; Fleck, 2012; Kaur, 2013). However, it appears the flexibility offered did not encourage the majority of respondents in this study to independently manage or self-regulate their learning (Ustun et al., 2023). Blended learning fails to promote students with autonomy and personalization in their learning (Bonk et al., 2005).

Similarly, collaboration among students for studying material and completing activities/assignments was expected to be well-facilitated in blended learning (Han & Ellis, 2021; Islam et al., 2022). Collaboration requires a "sense of need" for others, prompting cooperation. In other words, collaboration doesn't automatically arise just because features/channels are designed into blended learning. If learners feel a high need to seek peer help in understanding material or completing tasks, high collaboration is more likely to occur. Since students in this study did not report a strong need for peer help, collaboration was likely low.

Students perceived blended learning's flexibility (valued anytime/anywhere access) as its primary strength. However, the strength or potential offered by blended learning does not translate into effective learning outcomes, as seen from unsuccessful self-paced learning or improved study planning, low impacts on motivation and material understanding, as well as modest collaboration perceived by students. In addition, overall low satisfaction aligns with suboptimal engagement and limited critical dialogue. This indicates a significant gap between the potential of blended learning (e.g., autonomy, enriched outcomes) and its perceived reality. The findings contradict literature (Chen, 2022; Waqqar et al., 2020), suggesting that flexibility alone is sufficient to enable students to direct and or regulate their learning. This finding might point to a need for structured pedagogical support to convert access into autonomous and meaningful learning.

Aspects Contributing to Learning Effectiveness

Blended learning is chosen partly for its potential richness and variety of materials and activities, both online and offline. This richness could stimulate learning motivation, strategy adaptation, or exploration of new ideas (Hoadley, 2009; Kintu & Zhu, 2016). In blended learning, the internet and technology facilitate unlimited utility for connecting individuals, while face-to-face meetings enable dynamic and deep communication. Frequent dialogue/discussion among students or with instructors was expected to facilitate open and critical dialogue stemming from higher-order thinking (Garrison & Kanuka, 2004; Jaswal & Behera, 2024). The fact that only one-third of respondents strongly perceived increased learner-learner and instructor-learner communication and interaction in blended learning may indicate insufficient deep dialogue/discussion and weak critical thinking among students. In addition, blended learning's impact on the learning process and effectiveness is mediated by the user's technical ability. Sophisticated technology alone cannot guarantee success if lecturers and learners lack savvy digital skills.

Interaction/communication, active engagement, and technical competence are key aspects expected to drive effectiveness, which are underrealized by the students in this study. These deficiencies directly undermine learning effectiveness, as interaction fuels critical thinking (Garrison & Kanuka, 2004), and technical barriers hinder engagement (Lim et al., 2019; Sharma et al., 2022). The study highlights that pedagogical design (e.g., collaborative tasks, intuitive platforms) and learner self-regulation are critical drivers absent in the current implementation. Without intentional design and user-friendly technology, blended learning fails to leverage its core advantages, facilitating and developing higher-order learning such as analytical critical thinking, problem-solving, and collaboration skills (Vo et al., 2020; Yu et al., 2025).

Problems and Constraints in Blended Learning

Several factors pose problems and constraints in blended learning. First, students' inability to regulate their learning and to collaborate effectively in a blended learning environment reflects a weak digital learning attitude. Ustun et al., (2023) argued that blended learning demands strong self-regulation; students lacking digital self-management skills fail to convert flexibility into autonomous learning. While Han & Ellis (2021) explicated that collaboration in blended learning rarely emerges organically as it requires "designed interdependence" (e.g., relying on others to achieve shared goals), which is absent in students with low digital engagement attitudes. Without addressing this attitude, digital tools remain in use (Broadbent & Fuller-Tyszkiewicz, 2018). Second, low technical proficiency in platform usage undermines learning effectiveness in blended learning as it restricts engagement with materials and tasks, despite their online availability (Fleck, 2012; Sharma et al., 2022). Last, evidenced by low satisfaction with instructional clarity and lecturer feedback, the poor technological-pedagogical competency of lecturers compounds these challenges. Garrison & Kanuka (2004) asserted that blended learning requires "a fundamental redesign of the instructional model" beyond "replicating traditional classroom practices."

CONCLUSION

This study reveals critical insights into blended learning effectiveness through the perspectives of 509 students at the Faculty of Education, Makassar State University. While flexibility

in accessing materials is highly valued, its potential to foster self-regulated learning remains unrealized, with fewer students leveraging it for personalized pacing. Interaction and collaboration as the cornerstones of meaningful blended pedagogy prove lacking, with technical barriers further hindering progress. Consequently, impacts on motivation, content mastery, and overall satisfaction fall below expectations. These findings underscore a misalignment between technological convenience and pedagogical execution, suggesting that current implementations fail to harness blended learning's full capacity to enrich cognitive and social outcomes. It also points out that blended learning's success hinges not merely on technology integration but on intentional design prioritizing active collaboration, critical dialogue, and learner empowerment. To bridge the gap between promise and reality, it is recommended that 1) institutions must prioritize pedagogical redesign that embeds structured collaborative tasks (e.g., scaffolded online debates, peer feedback loops) to transform flexibility into self-directed growth as well as to stimulate critical dialogue and 2) technical accessibility should be elevated through simplified platform interfaces and mandatory digital literacy training for both students and lecturers.

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