



REVIEW ARTICLE

IMPACT OF USING BLENDED LEARNING PLATFORMS IN DELIVERING EDUCATION AS PERCEIVED BY THE STUDENTS IN THE HIGHER EDUCATION INSTITUTIONS (HEIS) IN SANTA CRUZ, LAGUNA

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ARTICLE DETAILS

Article History:

Received 22 November 2022
Revised 12 December 2022
Accepted 23 January 2023
Available Online 27 February 2023

ABSTRACT

When the pandemic struck, higher education adopted blended learning as the new standard curriculum. Blended learning is a combination of conventional, online, and digital components of education to provide students with a flexible setting for their experiences and learning. This study examined the effects of adopting blended learning platforms to offer education to students in Laguna, and it goes into further detail regarding the aspects influencing students' learning processes. These factors scrutinized how students, educators, organizations, learning assistance, technology, and content interact. In the subsystems of the complex adaptable blended learning system framework, the considerations of these factors are more important. Further, the study explored the coping mechanisms used by students and teachers in adjusting to the new standard curriculum. While the characteristics are discussed, the study also considered how the aforementioned aspects impacted student engagement, ability to cope up, learning outcomes, motivation, and the advantages of participation. It was therefore revealed that blended learning has significantly influenced the development of the new normal learning, which helped students successfully adjust. Hence, many students view blended learning as being both flexible and time-efficient. Notwithstanding, it is not for everyone due to several reasons. Such grounds include the fact that children require a lot of support as they transition to the new learning and guide on how to do so. The research suggests further discussion regarding a broader approach to blended learning. Results are vii presented considering how hybrid learning has impacted students who are pursuing higher education.

KEYWORDS

Blended Learning, Complex Adaptable Blended Learning System Framework, New Normal, Higher Education

1. INTRODUCTION

The 21st century offers other possibilities due to the emergence of new concepts and technologies, as rationalized (Wolfinger, 2016). For the past decade, an enormous revolution has occurred in the computer's educational applications. The internet is used in education in a variety of ways, ranging from using computers to using the internet. Finally, the concept of "blended learning," which depends on technology, provides educational content to the learners in a good and effective way. The need for advancement in education is necessary because of rapidly developing technologies. It has to be learned at any time and any place in order to achieve desirable outcomes. Using guidance to motivate students in distance education is dependent on a practical orientation toward cognitive, emotional, and behavioural engagement (Hunt, 2016). The global agreement to close the educational institutes was logical to keep social distancing from spreading. Some countries have shifted to online education.

The dangerous change in the post-COVID-19 crisis occurs in all societal institutions, but mainly in the educational sector. These changes needed wise leaders to make guidelines on transitioning to cope with the new normal. Higher institutions will play a major role in this process, starting with education, healthcare, economics, sport, etc. Otherwise, an unguided plan will lead to delinquency and disorganization. It will be a remarkable

response and effort for the academic and medical sectors in the majority of countries around the world. Blended learning (BL) is what all students go through during a pandemic. It is organically adopted as a helpful learning tool inside and outside the classroom. Blended learning is considered more flexible, effective, and efficient because it uncovers all learning styles. Since learners do not have the same learning styles, instructors find it challenging to maintain students' interests, especially when including them within the four classroom walls.

However, this changed as mixed learning participated in the usual learning configuration. While it has positively impacted the educational system, it is still necessary to identify its effects. These differing views led researchers to propose the impact of using blended learning. The approach advocates blended learning that can address the concerns of integrating technology and knowledge. Across the country, teachers are changing students' lives with the help of technology in blended learning classrooms. They evaluate, examine, and synthesize student work and data to unfold unique learning plans for each student while observing and working with small groups or an entire class. Blended learning shifts the instructor's role from knowledge contributor to coach and mentor. As more students work independently, more time becomes available for instructors to provide face-to-face support and individualized instruction to a greater number of students, effectively improving differentiation.

Quick Response Code



Access this article online

Website:
www.educationsustainability.com

DOI:
10.26480/ess.01.2023.24.31

However, teachers were still faced with the same questions when different learning modes were first introduced. Does blended learning significantly have an impact on delivering education? How about the learners' learning outcomes? Researchers came up with this study because blended learning is one of the tools used to deliver education to students in the present time. Students at higher education institutions (HEIs) around Santa Cruz, Laguna find it hard to provide blended learning and often forget to think about the possible solutions to deliver education effectively and efficiently. The potential limitation of this research is the collection of the primary data source due to the study's population size. The study will be conducted in the 2nd semester of S.Y. 2021–2022, at higher educational institutions (HEIs). The respondents are selected college students. Otherwise, an unguided plan will lead to delinquency and disorganization. It will be a remarkable response and effort to the academic and medical sectors in the majority of countries around the world.

2. LITERATURE REVIEW

Blended learning thoughtfully combines different instructional methods (Alammery et al., 2014). It employs an active learning approach and a variety of pedagogical techniques (Wondifraw and Dorothy, 2019). Consequently, includes both asynchronous and synchronous online learning (Diep et al., 2017). Accordingly, a study defined blended learning as a course that combines online and face-to-face distribution (Allen and Seaman, 2010). It primarily uses internet forums and holds fewer face-to-face meetings. Thus, BL bridged the gap between teachers and students by utilizing both online and traditional teaching and learning mechanisms. In the early 1840s, the learning and teaching modality had already been utilized through mailed postcards. It has consistently established the type of learning that the world currently has (Pappas, 2015). Blended Learning as a Combination of Traditional and Online Approaches Following the emergence of technology and its integration into education, educators have used several technological concepts.

CALL (Computer Assisted Language Learning), MALL (Mobile Assisted Language Learning), and many other online models are widely used in teaching and learning platforms. Blended learning is one of these technologically integrated approaches used in an educational context that effectively incorporates active language learning. Accordingly, blended learning consolidates a functional approach to replace traditional methods with accommodating technology for language teaching and learning passages. According to a study, blended learning is a double element, integrating formal face-to-face education with technologically generated principles (Dziuban et al., 2018). Since it combines technology, online teaching, and learning with traditional approaches, the learners will be interested in using analog and digital spaces. Furthermore, some researchers examined its perspective more, with 5 indicating the need to study the use of blended learning approaches in education through the MOES (Ministry of Education) (Fakhir, 2015).

Distance education is distinguished by the presence of an existing organizational infrastructure that enables the development of educational objectives for online learning. Blended Learning and Learners' Academic Achievement Meanwhile, it also supports the idea that learners have a positive attitude toward implementing blended learning approaches in their classrooms. According a study, blended learning improves learner comprehension by providing practical access that improves academic achievement (Ju and Mei, 2018). Blended learning, on the other hand, has an impact on students' learning outcomes (Banyen et al., 2016). Blended Learning: A Strategy for Modern Times Blended learning became popular with many educational institutions as the 'new normal' education modality amidst the pandemic. According to virtual classrooms became a direct replacement since physical interaction and one-on-one discussion were forbidden (Patel, 2020). In support of this, [13] noted in his article entitled "Finding a new path amidst the pandemic" that as the coronavirus disease (COVID-19) pandemic arises and continuously threatens the world, numerous adjustments are needed, particularly in one more major segment of society, which is the situation in education (Llemit, 2020).

Blended learning permits more learning possibilities that encourage learners to participate in and outside of class settings (Senffner and Kepler, 2015). They also pointed out that blended learning is flexible and expandable, which helps with meaningful teaching and learning. The online portion of blended learning allows students to learn whenever they prefer without being limited to groups or partners. Furthermore, blended learning provides learners with an online and face-to-face set-up to meet, conspire, and work on substantial projects (Riel et al., 2016). Each of these spaces has a specific advantage for successful learning. Additionally, blended learning facilitates classroom learning because it is clear, attainable, resilient, and independent. The outcomes of active participation express the choice between an individual and a dynamic

collective learning environment. According to learners appreciate Moodle's contribution to their learning (Goyal and Tambe, 2015). Moodle is a platform that enables learners to create 7 online courses and for instructors to keep an eye on the learners' progress. With that, they used descriptive statistics to signify and upgrade learning using uploaded syllabi and session plans.

Improving learners' material is also noted through dividing study material and submitting assignments. Learners in the study found Moodle to be an efficient collegiate tool. The teacher is the most important life form in the educational ecosystem. It has become one of the most important roles in change with blended approaches because curriculum design is entirely reliant on what educators do and presume. Blended learning provides opportunities for an elevated approach to knowledge, social interaction, richness, resilience, cost efficiency, personal agency, and improved results. However, [17] brought about the fact that the funders, people, and institutions or groups behind its inference have little consciousness about the related challenges ahead (Gilmour, 2020). However, some researchers discussed that esteem needs and personal worth would help them do their best to surpass this new curriculum's challenges (Tus, 2020). Poor internet connections cause dissatisfaction and have a negative impact on learners' learning by impeding their ability to engage in online discussions (Akpan, 2015).

On the other side, blended learning requires using a computer, tablet, or laptop that needs an internet connection (Challenges of Blended Learning Models, 2015). Still, this program's maintenance and application are expensive for everyone. In any case, factors supporting the effectiveness of blended learning confirmed that students are gradually adapting to new learning methods in comparison to traditional methods as they become more self-sufficient in meeting their academic obligations. Blended learning studies have confirmed that learners' transformation from passive to active participants in learning improved learning outcomes and behaviors, as well as learners' overall positive reception of blended learning. Coping Mechanism According to a positive effect on mental health and a betterment in the anxiety and stress conditions of the students are a result of introducing mindfulness, or relaxation, breathing, meditation, focus, and body awareness, to name a few of its essential elements, to the classroom (Hanifan, 2022).

The researchers also mentioned how these strategies contributed to the learners' self-esteem, social behavior, and academic performance. As a result of this, they undergo a dynamic, adaptive process of change as they interact with other subsystems in the multimodal learning environment. Studies that have preserved the goal of quality conceptualization should demonstrate that online and face-to-face instruction and education should sustain one another by combining various improvements (Cakir and Bichelmeyer, 2016). Nonetheless, it is often not specified what these advantages are, although there are exclusions. As an example, blended learning could reinforce learning outside the classroom (Zacharis, 2015). Thus, teachers and learners have a target frame, a seminar might continue employing online discussion boards or other media. There is an identical example wherein students harden the activities and the flipped classroom approach face-to-face. Regarding that, the participants acquired the tutorial materials being employed, including video lectures, so that it will be more practical for classroom conferences on the topic and for transferring out student-centered learning activities like teamwork.

Quantity Conceptualization Digital Classroom Conceptualization The digital classroom conceptualization of blended learning highlights the utilization of online technologies in classroom settings. Blended learning is frequently described as utilizing digital technology. With the rapid development of technology-based teaching delivery, the findings of the study showed teachers' satisfaction in experiencing professional development training through a blended learning approach. In the context of the virtual classroom, learners have the opportunity to access the learning materials regardless of time and space.

Moreover, it was recognized that technology plays a significant role in the teachers' approach to teaching. ICT primarily has a collective impact on the instruction provided to students. With the continuous modernization of technology, educators will be satisfied with the learning approach based on their experiences. In blended learning, it implies that teachers and students are both parts of the virtual classroom, irrespective of geographical separation and face-to-face classroom meetings (Lalima and Dangwal, 2017). Nowadays, addressing virtual classrooms considers a student's mode of learning, where it is easy for them to access the internet and do their tasks anytime and anywhere (Kumar, 2009). Thus, the main problem with this learning mode for teachers and students is the location and modes of access to the internet. It was knowing that not all students and teachers have access to the internet.

3. METHODS

The study utilizes a quantitative research method. It is the act of gathering and analysing numerical data to identify patterns and averages, make predictions, verify causal linkages, and extrapolate conclusions to larger groups. The nature of the study is a descriptive research method that describes the impact of a blended learning platform on delivering education. Descriptive research means precisely and efficiently depicting a population, circumstance, or peculiarity (McCombes, 2019). A specific exploration configuration can utilize various examination techniques to research at least one factor. Dissimilar to an exploratory examination, the specialist does not control any aspects, notices, or measurements.

The study focuses on the college students of higher educational institutions in Santa Cruz, Laguna. The respondents answered the survey online due to the ongoing pandemic. The study covers the academic year 2021–2022. One hundred (100) students from private schools in Santa Cruz and Laguna participated in this study. The participants answered the questions using survey questionnaires formatted in Google Form, a self-made survey questionnaire.

The researchers distributed the questionnaire to the respondents by sending them a link. This study used convenience sampling. This sampling method is ideal for the study’s respondents, who are selected college students from higher education institutions in Santa Cruz and Laguna. Responses to each statement are measured based on a 5-point scale. The researcher put the questions into a Google Form and distributed the link

to the respondents. The information gathered from the respondents remained confidential and was used for research purposes only. Descriptive statistics were used for data analysis.

4. THE RESULTS AND DISCUSSION

Table 1 illustrates the new learning platform that higher education institutions are using in the new normal.

Table 1: The Learning Platforms Used by the Higher Education Institutions in Delivering Education in the New Normal		
Learning platforms	Frequency	Percentage
Modular	6	6%
Digital	9	9%
Online	85	85%
AVERAGE WEIGHTED MEAN	100	100%

Six percent (6%) of students in Sta. Cruz Laguna use modular learning, which is intended for students who are given modules to learn independently but, most often, do not have the time to meet the usual class requirements. Eighty-five percent (85%) of respondents engage in using online learning platforms. Blended learning positively affects learners’ comprehension by being a practical approach that enhances the learners’ academic achievements.

Table 2: Factors Affecting Adoption of Blended Learning Platforms in Higher Education Institutions Based on Complex Adaptive Blended Learning System Framework in Terms of Learner				
Statements	Mean	SD	Verbal Interpretation	Rank
Learners carry out academic tasks more efficiently as compared to the traditional way.	3.68	0.82	Agree	3
It helps learners become self-knowledgeable.	3.86	0.73	Agree	1
Build up the learner’s self-confidence.	3.76	0.94	Agree	2
AVERAGE WEIGHTED MEAN	3.71	0.70	Agree	

Blended learning platforms are based on a complex adaptive blended learning system in terms of the learner. This type of educational framework is focused on the learners’ adaptation to this new normal school curriculum. Students are gradually adjusting to the new ways of learning compared to the conventional methods of becoming self-sufficient. Blended learning has proven to be a flexible type of education in

which students are able to complete tasks at their own pace. The online portion of blended learning allows students to learn whenever they prefer without being limited to groups or partners. Despite the complexity of the new educational system, the majority of students have responded favorably.

Table 3: Factors Affecting the Adoption of Blended Learning Platforms in Higher Education Institutions Based on Complex Adaptive Blended Learning System Framework in Terms of Teacher				
Statements	Mean	SD	Verbal Interpretation	Rank
Blended learning helps learners to further their education in the future.	3.82	0.72	Agree	2
It offers the possibility to efficiently manage students’ time.	3.94	0.65	Agree	1
Maintained adequately the student interaction with the teacher when he/she is on the other side of the blended learning classroom.	3.66	0.69	Agree	3
AVERAGE WEIGHTED MEAN	3.81	0.58	Agree	

Blended learning presents issues in the current environment because of factors including internet outages, expensive technology being utilized, insufficient teacher training, a decline in motivation, and others. A survey of students who participated in the blended learning system was undertaken to validate the claim that was made in regard to adaptive comprehensive learning and to assess the teachers. Blended learning is a

component of the educational process that prepares students for a future in education. There are nine practical factors for blended learning: teacher roles, design activities, a learning management system, face-to-face lessons, online course materials, student interaction, assessment and evaluations, learner roles, and online sharing (Cirak, 2016).

Table 4: Factors Affecting the Adoption of Blended Learning Platforms in Higher Education Institutions Based on Complex Adaptive Blended Learning System Framework in Terms of Technology				
Statements	Mean	SD	Verbal Interpretation	Rank
It can apply experience in accessing information from the web.	3.90	0.89	Agree	2
Enhance the quality of interaction between all involved parties using technology.	3.76	0.77	Agree	3
Modern tools and equipment such as (computers, the internet, etc.) are involved in blended learning.	4.18	0.77	Agree	1
AVERAGE WEIGHTED MEAN	3.95	0.64	Agree	

The learning system that was given to the students became more complex as a result of identification technology and environment. Out of 100

respondents, the student responses were (M = 4.18, SD = 0.77) stating that they had been utilizing modern databases like technology, Wi-Fi, and

various online programs on blended learning in a classroom setting. Blended learning provides opportunities for the uplifted approach to knowledge, richness, resilience, cost efficiency, personal agency, and improved results. One of the decisive problems is the literacy in using

technology, as not all digital resources are easy to use and reliable. This section discusses about the advantages of blended learning and how it was utilized to apply it to students' learning.

Table 5: Factors Affecting the Adoption of Blended Learning Platforms in Higher Education Institutions Based on Complex Adaptive Blended Learning System Framework in Terms of Content

Statements	Mean	SD	Verbal Interpretation	Rank
It is more motivating to learners than traditional ones.	3.42	0.93	Agree	3
Activities are offered through electronic meetings since they pose questions that need a high degree of thinking.	3.84	0.82	Agree	1
Learners are satisfied with the way of distributing scores to the different activities (assignments, quizzes, exams, etc.).	3.70	0.86	Agree	2
AVERAGE WEIGHTED MEAN	3.65	0.73	Agree	

Most mixed-learning information is available online or is provided with conventional textual works. Students were given access to the learning resources through the offered output's content. A total of ($M = 3.84$, $SD = 0.82$) out of 100 have responded that the content materials need more in-depth analysis. Results from an average weighted mean of 3.65 indicate

that students' adaptability to the reading materials given to them is a factor in determining how well they absorb the subject to which they have quick access in terms of information. This indicates the preference for a blended learning module that integrates technological systems and traditional methods of education.

Table 6: Factors Affecting the Adoption of Blended Learning Platforms in Higher Education Institutions Based on Complex Adaptive Blended Learning System Framework in Terms of Learning Support

Statements	Mean	SD	Verbal Interpretation	Rank
Students are encouraged to take responsibility for their own learning	4.02	0.65	Agree	1
It satisfies the process of collaboration activities during the course	3.60	0.83	Agree	2
Learners are more focused in sessions of blended learning.	3.48	0.86	Agree	3
AVERAGE WEIGHTED MEAN	3.70	0.62	Agree	

Students were able to evaluate their own level of learning support in this new kind of new normal education. It was revealed that among the 100 respondents, with average scores of ($M = 4.02$, $SD = 0.65$), students should be encouraged to learn on their own because this decision is ultimately a gain. Blended learning design features (technology quality, online tools

and face-to-face support) and student characteristics (attitudes and self-regulation) predicted student satisfaction as an outcome. Such studies highlighted how technology satisfies students in terms of its usability, allowing them to access everything with a single tap (Dziuban et al., 2018).

Table 7: Factors Affecting the Adoption of Blended Learning Platforms in Higher Education Institutions Based on Complex Adaptive Blended Learning System Framework in Terms of Institution

Statements	Mean	SD	Verbal Interpretation	Rank
Learning environment satisfies activities which inquired to do in.	3.68	0.79	Agree	3
It encourages learners to pursue information.	3.82	0.83	Agree	1
Blended learning is efficient as a learning style.	3.74	0.88	Agree	2
AVERAGE WEIGHTED MEAN	3.75	0.69	Agree	

Table 7 summarized the institutional factors influencing the adoption of blended learning platforms based on complex adaptive blended learning systems. Serving from an institution is important in the blended learning platform. Institutions must provide pertinent methods, policies, and assistance to support students' comprehension of the new mixed-learning

environment. Blended learning provides opportunities for an elevated approach to knowledge, social interaction, richness, resilience, cost efficiency, personal agency, and improved results. The respondents, who had an average of $M = 3.74$ and $SD = 0.88$, stated that the learning environment satisfied the student.

Table 8: Impact of Using Blended Learning Platforms in Delivering Education on the Students' Performance in Terms of Attendance

Statements	Mean	SD	Verbal Interpretation	Rank
Online learning platform is convenient and flexible in the time of the student.	3.84	0.77	Agree	4
Most of the students attend class when learning including students' input about what and how topics will be discussed in class.	3.92	0.67	Agree	3
They attend class when they feel comfortable asking the teacher questions about what they are learning.	3.80	0.88	Agree	5
Students inspire to attend class when teachers provide ways to express their opinions.	4.10	0.71	Agree	1
Students attend class more frequently when the teaching supports hands-on learning.	4.06	0.74	Agree	2
AVERAGE WEIGHTED MEAN	3.94	0.62	Agree	

In Table 8, the impact of using blended learning platforms in terms of attendance was interpreted. In a traditional face-to-face class, attendance significantly affects students' performance. However, with blended learning, students can access the material whenever it is convenient for them because schools offer both synchronous and asynchronous styles of

adaptation. Blended learning may be used to scale up or down the effective enrolment in a course. A discussion-based classroom with Socratic dialogue can make each student feel valued, resulting in increased student attendance. Despite its growing popularity, blended learning suffers from a lack of standards.

Table 9: Impact of Using Blended Learning Platforms in Education on the Students' Performance in Terms of Engagement

Statements	Mean	SD	Verbal Interpretation	Rank
The online learning platform provides opportunities for the students to enhance listening and reading skills.	3.98	0.68	Agree	1
Increase flexibility on accomplishing assignments and other course requirements.	3.82	0.69	Agree	2
Find the online learning platforms as quiet and user-friendly.	3.74	0.96	Agree	3.5
Enhances social interactions through collaborations among students.	3.74	0.88	Agree	3.5
Improves academically whenever the lecturers use teaching aids like learning module.	3.78	0.74	Agree	5
AVERAGE WEIGHTED MEAN	3.81	0.74	Agree	

An average of ($M = 3.78$, $SD = 0.74$) showed that students have improved academically using online platforms. The average scores of which were similarly ranked at 3.5 for user-friendly online learning. Table 9 shows the impact of using blended learning platforms in terms of engagement. Good learning is collaborative and social, not competitive and isolated. Working

with others frequently increases participation in learning. Sharing one's own thoughts and responding to the reactions of others improves thinking and deepens understanding. Blended learning allows students to move freely and learn in a better way as they study at the convenience of their homes.

Table 10: Impact of Using Blended Learning Platforms in Delivering Education on the Students' Performance in Terms of Performance

Statements	Mean	SD	Verbal Interpretation	Rank
Students improve their participation in group discussions.	3.52	0.97	Agree	5
Enhance the student's skills in integrating ideas or information.	3.70	0.97	Agree	4
Realize that learning materials from the online platform are relevant to the student's life.	3.78	0.76	Agree	1
Build up the student's confidence through participating in class discussions and activities online.	3.76	0.87	Agree	2
Develop students' participation in doing projects and activities with other students during online discussions.	3.72	0.83	Agree	3
AVERAGE WEIGHTED MEAN	3.70	0.71	Agree	

Blended learning platforms offer numerous opportunities for students who have flexible schedules for their time, typically without restrictions on how much progress they can make in their academic work. However, by

controlling their period, it may develop outside of the classroom as well. Learners are encouraged to use blended learning to improve their professional performance (Akbarov et al., 2018).

Table 11: Impact of Using Blended Learning Platforms in Delivering Education on the Students' Performance in Terms of Learning Outcome

Statements	Mean	SD	Verbal Interpretation	Rank
Find most of the new topics interesting and often spend extra time trying to obtain more information.	3.92	0.80	Agree	2
Students inspire more to involve in any virtual lesson to discover new things.	3.80	0.88	Agree	3
Challenge themselves to study more important topics until they completely understand.	3.94	0.89	Agree	1
Students prepare most of the challenging classwork to learn new things.	3.78	0.82	Agree	4
Students spend most of their free time in finding more about interesting topics which have been discussed in different classes.	3.60	0.99	Agree	5
AVERAGE WEIGHTED MEAN	3.81	0.81	Agree	

Blended learning has an influence on how students respond to their assignments. Some respondents who received an average of ($M = 3.80$, $SD = 0.88$) stated that they were motivated by the virtual lesson's involvement in learning new things. Others have responded, claiming that new learning processes help them become ready for the new normal curriculum. Blended learning helps the learning process in the classroom because it is

clear, attainable, resilient, and independent. There are many opportunities for reachable and resilient study methods in supportive environments. An average weighted mean of 3.81 depicted the direct effects of motivation used in blended learning on learning outcomes, which led to academic achievements.

Table 12: Impact of Using Blended Learning Platforms in Delivering Education on the Students' Performance in Terms of Motivation

Statements	Mean	SD	Verbal Interpretation	Rank
Students do well in an online class to show their achievements to their family and friends.	3.78	0.89	Agree	5
Build up the student's interest in topics that are being taught.	3.92	0.70	Agree	2.5
Considering the difficulty of online classes, students think that they can do well to learn new things.	3.80	0.78	Agree	4
It satisfied the students to understand the lesson content as thoroughly as possible.	3.92	0.78	Agree	2.5
Students are inspired to be better in their class when someone compliments and encourages them.	4.06	0.71	Agree	1
AVERAGE WEIGHTED MEAN	3.90	0.65	Agree	

Blended learning platforms have an influenced student motivational performance which is one of the major reasons why students do well in school. Table 12 provided insights into how students will use blended

learning to motivate them to work harder on mastering the instructional strategy recommended by higher-level institutions and to engage in better performance.

Table 13: Significant Difference in the Factors Affecting the Adoption of Blended Learning Platforms in Higher Educational Institutions Based on the Complex Adaptive Blended Learning Systems Framework as Determined by the Students

	Mean	Variance	F-value	P-value	Analysis
Learner	3.77	0.51	5.1149	0.0001	Significant
Teacher	3.81	0.43			
Technology	3.95	0.41			
Content	3.65	0.46			
Learning Support	3.70	0.37			
Institution	3.75	0.46			

Blended learning has had a significant positive impact on the teaching and learning process, regardless of how it is implemented. Factors affecting the Adoption of Blended Learning Platforms in Higher Educational

Institutions found to have a significant difference of (F=5.1149) at 0.05 level of significance.

Table 13: Significant Relationship between the Factors Affecting the Adoption of Blended Learning and Student's Performance

Factors	Students' Performance	R-value	Strength	P-value	Analysis
Learner	Attendance	0.54	Moderate	0.00	Significant
	Engagement	0.62	Strong	0.00	Significant
	Performance	0.61	Strong	0.00	Significant
	Learning Outcome	0.68	Strong	0.00	Significant
	Motivation	0.56	Moderate	0.00	Significant
Teacher	Attendance	0.46	Moderate	0.00	Significant
	Engagement	0.63	Strong	0.00	Significant
	Performance	0.62	Strong	0.00	Significant
	Learning Outcome	0.56	Moderate	0.00	Significant
	Motivation	0.54	Moderate	0.00	Significant
Technology	Attendance	0.55	Moderate	0.00	Significant
	Engagement	0.55	Moderate	0.00	Significant
	Performance	0.45	Moderate	0.00	Significant
	Learning Outcome	0.40	Moderate	0.00	Significant
	Motivation	0.58	Moderate	0.00	Significant
Content	Attendance	0.44	Moderate	0.00	Significant
	Engagement	0.52	Moderate	0.00	Significant
	Performance	0.56	Moderate	0.00	Significant
	Learning Outcome	0.60	Strong	0.00	Significant
	Motivation	0.55	Moderate	0.00	Significant
Learning Support	Attendance	0.50	Moderate	0.00	Significant
	Engagement	0.66	Strong	0.00	Significant
	Performance	0.70	Strong	0.00	Significant
	Learning Outcome	0.67	Strong	0.00	Significant
	Motivation	0.62	Strong	0.00	Significant
Institution	Attendance	0.46	Moderate	0.00	Significant
	Engagement	0.63	Strong	0.00	Significant
	Performance	0.63	Strong	0.00	Significant
	Learning Outcome	0.70	Strong	0.00	Significant
	Motivation	0.61	Strong	0.00	Significant

The teacher was observed to have a moderate relationship with attendance ($r = 0.46$). The teacher has a significant influence on student performance in areas such as attendance, engagement, performance, and learning outcome. Learning support was observed to have a moderate relationship with attendance ($r = 0.44$). On the other hand, it is observed that there is a strong relationship between engagement and learning outcomes. Otherwise, content has a significant relationship to student performance indicators such as attendance, engagement, learning outcome, and motivation.

5. CONCLUSION

The utilization of blended learning like online learning, modular learning, and digital learning in the new face-to-face classes helped 72 students achieve better outcomes on various levels. Students were able to adapt and

develop learning habits in terms of time management. Comparing online classes to modular and digital learning, most students use the learning methods that higher education has to offer. According to the findings, students were more exposed to online learning, where they study using resources made available online. Further, factors affecting students' motivation in blended learning have a big impact on their performance and lead to good results.

The complex subsystems of adaptive learning systems, which constantly change over time, are among the elements that influence the adaptation of blended learning. As for the teachers, it has been discovered that communication restrictions were categorized as a difficult aspect of blended learning. Since internet connectivity is crucial to the process, some students were unable to keep up due to connectivity issues, a lack of resources, and a lack of motivation to learn because of the current

circumstances, which directly impacted student-teacher relationships.

The study showed how technology influenced the adaptation of blended learning. It was revealed how technology impacts blended learning. With collaborative communication, students have access to all the tools they need for effective communication. The resources may be accessed on a single device. Accordingly, technology is one of the necessities for blended learning. To boot, students' effective learning was made possible through communication using online platforms. While communication is important, the survey also revealed a significant effect on students' responses to the learning materials' content, which most students who were enrolled in blended learning found to be an additional learning experience.

It indicates that the modules and learning materials that are adapted contain the proper content that will effectively support the students. It was indicated that the outcome of learning support encourages students to learn effectively. The use of tools aided students by providing all of the learning support required to comprehend the teachings on the available materials. The institution, which incorporates student adaptability into its educational program, was another aspect that influenced students' use of blended learning based on the survey results. Part of the institution's learning distribution includes the survey results on the variables influencing how students are guided through the learning process.

As the educational institutions were in charge of providing students with instructional materials, they managed to determine if the correct instructional materials were being used to support the students' learning. Such factors to be considered include students, teachers, technology, learning support, content, and institutions. These have various subsystems that help students manage their learning simultaneously. These subsystems covered the teaching process, content, and higher education's perception of their approach to implementing an efficient plan for educating students during the pandemic. The impact of blended learning on students' performance, attendance, engagement, learning outcomes, and motivation is demonstrated by these criteria. Based on the students' performance, it is apparent that the tools utilized in blended learning as opposed to the new traditional class contributed to the educational platforms' efficiency.

In such cases, students might miss a lot of classes in a traditional setting if they are tardy. Comparatively, in a blended learning environment, there are recorded sessions that students may occasionally access to review the topics they missed. The survey results also showed that student engagement has a significant impact on academic performance, which in this case demonstrated that online classes allowed students to participate in the most productive way possible. In such a manner, learning flexibility increases as a result of the advantages of blended learning. Additionally, the findings provided a favorable impression, as students found it comfortable to use this learning platform. In terms of learning performance outcomes, it should be noted that students' incentive to adapt learning performance is how they succeed at autonomous learning because blended instruction is convenient in terms of accessibility. In addition, it showed that group discussions had some of the lowest scores, which implied that students find it difficult to cooperate in group discussions during online classroom sessions.

On the other hand, motivation survey results revealed that students are motivated by their professors because they have provided learners with feedback on how they may improve and opportunities to study in ways that highlight their strengths, which addressed the connections between the modalities of blended learning, including student performance. Regarding the following elements—learner, teacher, technology, learning support, and institutions—along with each subsystem—motivation, performance, and outcome—thorough results were shown on the moderate outcome, in which the students learned more, and their relationship with each factor exemplified the influence of blended learning.

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