Digital Literacy Ability and Blended Learning Course Experience among College Students

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ABSTRACT

Blended Learning (BL) represents a pedagogical strategy that merges conventional in-person teaching within a classroom setting with elements of online learning. This study aimed mainly to assess the significant correlation between digital literacy ability and blended learning course experience among college students enrolled in a local higher education institution (HEI) in Santo Tomas, Davao del Norte. This study employed a quantitative, non-experimental approach using a descriptive-correlational design. The 353 respondents completed two sets of adapted-modified survey questionnaires that were validated by the panel of experts. Mean and pearson r were utilized to determine the significant relationship between digital literacy ability and blended learning course experience among college students. The findings showed an r-value of 0.583 and a p-value of 0.000, showing a positive medium significant relationship between digital literacy ability and blended learning course experience. It was thus recommended that the ability to utilize digital literacy in blended learning course experience be closely monitored and prioritized in order to ensure students receive a quality education and satisfactory learning experiences in this modality.

Keywords - digital literacy ability, blended learning course experience, Philippines.

INTRODUCTION

Learning generally takes place in classrooms with direct instructor engagement, but the recent increase in college enrollments, particularly in public institutions, presented a problem for schools attempting to accommodate students amidst numerous internal and external challenges (Hudson, 2025). According to Graham and Halverson (2022), blended learning (BL) refers to the integration of in-person and online education, which is increasingly gaining traction in the educational realm and is being referred to as the "new normal" in teaching. However, according to Muhria et al. (2023), students encounter problems including self-regulation, technical literacy and skills, feelings of isolation, technology adequacy, and the complexity of technological instruments in blended learning.

In Indonesia, students in the blended learning modality always experienced uncertain happenings in their class from poor internet connection, difficulties in using online educational platforms, time management, and self-motivation (Rianto, 2020). In general, the education system appeared to be unprepared, and unforeseen consequences may arise in this modality (Cajucom, 2022). Furthermore, in Romania, being isolated at home and taking blended learning classes is tougher and more distractive, and their attention span is lower since there are factors affecting students' performance in different aspects (Aivaz, 2022).

In the Philippines, the Department of Health declared a statewide public health emergency where Filipino students have already been used to not being in a classroom while learning (De Leon, 2023). In this scenario, blended learning shows a digital divide among Filipino students (Santos, 2020). Blended learning heightens social inequalities and hinders access to online education (Indrajaya, 2024). A national study indicated that Filipino students face challenges with this mode of learning, frequently attributed to unreliable internet

connections (Baticulon et al., 2021). The circumstances present significant challenges for the educational system (Basar, 2021).

In Davao del Norte, the execution of blended learning (BL), integrating in-person and online classes, poses considerable difficulties for numerous students, especially during the pandemic (Anduyan, 2021). The office of Department of Education of Region XI launched the Distance Learning Delivery Modalities (DLDM), incorporating modular distance learning, online learning, and blended learning to meet the varied needs of students in the Davao Region (National Economic and Development Authority Region XI, 2020). A study conducted among Bachelor of Science in Information Technology students at Davao del Norte State College found that while some have personal devices suitable for online learning, numerous individuals struggle to access necessary technology often relying on borrowed devices from friends or family while poor internet connectivity also hinders their ability to fully participate in blended learning (Dabalos, 2021). As a result, this mode of learning presented challenges that push many students to strive harder for their success (Alvarez, 2020).

While existing research explored various factors influencing blended learning course experience, a notable gap persists in studies that directly correlate digital literacy ability with blended learning course experience within local settings. The existing gap presented a considerable challenge for educational institutions aiming to improve the efficacy of their blended learning programs. To tackle this urgent concern, this research intended to explore the critical link between digital literacy ability and the blended learning course experience of college students in local contexts. This study provided solutions to identified problems, serving as an important resource for future research in this area. The findings delivered valuable insights regarding the connection between digital literacy ability and the blended learning course experience of college students, which will be advantageous to educators, administrators, and upcoming researchers, especially those working within the framework of this study.

Statement Of The Problem

This study aimed mainly to assess the significant correlation between digital literacy ability and blended learning course experience among college students studying in a local higher education institution (HEI) in Santo Tomas, Davao del Norte.

In particular, this was intended to respond to the subsequent questions:

1. What is the level of students' digital literacy ability in terms of:

    1.1 hardware and software basics;

    1.2 information and digital literacy;

    1.3 communication and collaboration;

    1.4 digital content creation;

    1.5 security;

    1.6 problem solving; and

    1.7 career related competencies?

2. What is the level of blended learning course experience in terms of:

    2.1 course design;

    2.2 learning experience; and

    2.3 personal factor?

3. Is there a significant relationship between digital literacy ability and blended learning course experience among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte?

Hypothesis

The null hypothesis was tested using a significance level of 0.05, indicating that there was a significant relationship between digital literacy ability and blended learning course experience among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte.

Theoretical Framework

This research was primarily based on Sweller's (1988) Cognitive Load Theory, which emphasizes how technology can either facilitate or obstruct learning in blended environments, where the appropriate use of online tools significantly improves students' learning experiences in their courses. Moreover, this theory was used in a study by Basri (2024) where he emphasized the significant correlation between students' utilization of technology and the blended learning course experience, particularly in relation to cognitive processing as outlined in Cognitive Load Theory. This idea posits that learning was best effective when the volume of information provided was optimized neither excessive nor insufficient. Robust digital literacy abilities enable students to excel in mixed learning environments aimed at achieving cognitive equilibrium and optimizing learning outcomes.

This research was also based on the Technological Pedagogical Content Knowledge (TPACK) Theory proposed by Mishra and Koehler (2006), highlighting the importance for educators to thoroughly understand the relationship between technology, teaching methods, and content knowledge. College students need strong digital skills to effectively use online resources in blended learning environments. Moreover, this theory was used in a study by Phan et al. (2024) which revealed that the TPACK theory, which blends technology, teaching methods, and subject knowledge, can significantly improve how college students learn in blended learning environments. This integrated strategy was the key to developing the digital competencies necessary to thrive in today's educational landscape.

Conceptual Framework

The conceptual framework as shown in Figure 1, outlined the study's variables.

The independent variable of the study was digital literacy ability. This variable consisted seven (7) indicators, which were: hardware and software basics, information and data literacy, communication and collaboration, digital content creation, security, problem-solving; and career-related competencies (Afandi et al, 2024).

The dependent variable of the study was blended learning course experience. This variable consisted three (3) indicators, which are: course design, learning experience, and personal factor (Bhagat, 2020).

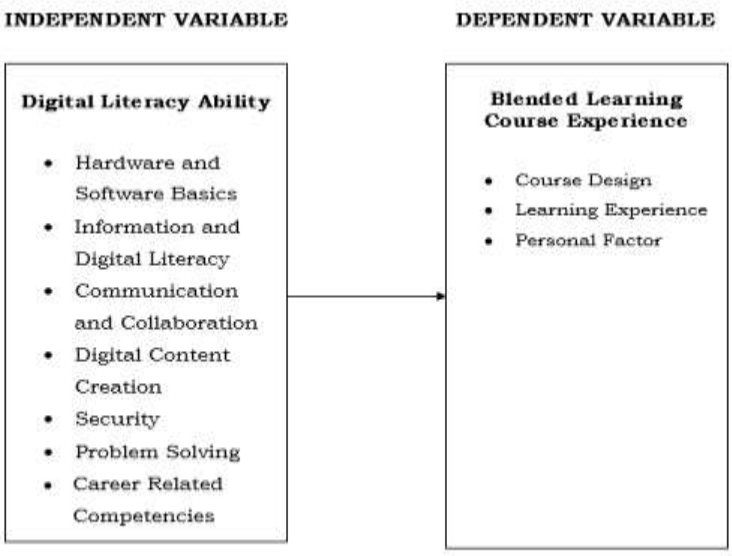

Figure 1. The Conceptual Framework of the Study

METHODOLOGY

Research Design

This study utilized the quantitative, non-experimental, descriptive-correlational research design for it is appropriate when determining the relationships between the two variables in a single group (Devi et al., 2023). According to Salmons (2023), a quantitative, non-experimental research method gathered numerical information to investigate the connections between variables without altering any of them. According to Brodowicz (2024), descriptive-correlational research, which analyzed connections between variables without intervention, are suitable for exploring the relation between digital literacy ability and the blended learning course experience.

The researchers utilized quantitative methods as they facilitate objective measurement and statistical analysis of digital literacy ability and blended learning course experience among college students. It was non-experimental due to the absence of variable modification, relying solely on the observation of existing conditions. A descriptive-correlational approach was employed to assess the current state of digital literacy ability and examine its relationship with the blended learning course experience, without suggesting a cause-and-effect relationship.

Research Subject

The respondents of this study were 353 college students out of a total population of 4,318 enrolled at a local higher education institution in Santo Tomas, Davao del Norte. The researchers utilized Raosoft sampling, an online sample size calculator, to determine the required sample size from the recorded population.

The participants were chosen using a stratified random sampling method. This method involved dividing a population into distinct groups based on particular traits, and then randomly selecting a sample from each group to guarantee adequate representation (Simkus, 2023). In addition, stratified random sampling allows for analysis of the overall population as well as specific subgroups within the population. This means researchers gain insights into both general trends and the unique characteristics of different groups (Nguyen et al., 2020).

Table 1. Distribution of Respondents

Areas	Population (N)	Sample (n)	Percentage (%)
Department A	1, 343	110	31
Department B	1, 234	101	29
Department C	826	67	19
Department D	539	44	12
Department E	306	25	7
Department F	70	6	2
Total	**4, 318**	**353**	**100%**

Research Instrument

The researchers utilized two (2) adapted survey questionnaires for independent variable and dependent variable from internationally disseminated studies to achieve the goals of this research. The questionnaires were validated by the panelist and an external validator to test its validity. A questionnaire was used to gather information from respondents regarding their attitudes, experiences, and opinions. Questionnaires were useful for gathering quantitative data (Bhandari, 2022).

Digital Literacy Ability Questionnaire.The survey questionnaire for the independent variable, digital literacy ability, was from the research study titled "Digital Literacy Questionnaire Instrument: Based on the Integration of Elementary School Students' Characteristics" by Afandi et al. (2024). It consisted of 21 items and were composed of seven (7) indicators, namely: Hardware and Software Basics (4 items), Information and Data Literacy (3 items), Communication and Collaboration (3 items), Digital Content Creation (3 items), Security (3

items), Problem-Solving (2 items), and Career-Related Competencies (3 items). The survey used a 5-point Likert scale, ranging from 5 for "Strongly Agree", 4 for "Agree", 3 for "Moderately Agree", 2 for "Disagree", and 1 for "Strongly Disagree".

The parameter and scaling used for the interpretation of the digital literacy ability of the college students studying in a local higher education institution in Santo Tomas, Davao del Norte was the following:

Range of Mean	Descriptive Level	Interpretation
4.20 – 5.00	Very High	Digital Literacy Ability was always observed.
3.40 – 4.19	High	Digital Literacy Ability was oftentimes observed.
2.60 – 3.39	Moderate	Digital Literacy Ability was sometimes observed.
1.80 – 2.59	Low	Digital Literacy Ability was less observed.
1.00 – 1.79	Very Low	Digital Literacy Ability was least observed.

Blended Learning Course Experience Questionnaire. The survey questionnaire for the dependent variable, blended learning course experience was from the research study titled "The Impact of Blended Learning at the Uganda Management Institute" by Bhagat (2020). It consisted 19 items and are composed of three (3) indicators, namely: Course Design (9 items), Learning Experience (7 items), and Personal Factor (3 items). The survey used a 5-point Likert scale, ranging from 5 for "Strongly Agree", 4 for "Agree", 3 for "Moderately Agree", 2 for "Disagree", and 1 for "Strongly Disagree".

The parameter and scaling used for the interpretation of the blended learning course experience of the college students studying in a local higher education institution in Santo Tomas, Davao del Norte was the following:

Range of Mean	Descriptive Level	Interpretation
4.20 – 5.00	Very High	Blended Learning Course Experience was always observed.
3.40 – 4.19	High	Blended Learning Course Experience was oftentimes observed.
2.60 – 3.39	Moderate	Blended Learning Course Experience was sometimes observed.
1.80 – 2.59	Low	Blended Learning Course Experience was less observed.
1.00 – 1.79	Very Low	Blended Learning Course Experience was least observed.

Statistical Treatment Of Data

Mean. The mean was a fundamental statistical metric that represents the average value of a dataset and was crucial for comparing and understanding data distributions (Li et al., 2020). This would be used to determine the level of digital literacy ability and blended learning course experience among college students.

Pearson R. Pearson r was commonly used to evaluate linear correlations, expresses the relationship's strength and direction between two variables as a value ranging from -1 to 1 (Weisburd et al., 2020). This would be used to identify the meaningful connection between digital literacy ability and blended learning course experience among college students.

RESULTS AND DISCUSSIONS

Level of College Students' Digital Literacy Ability in terms of Hardware and Software Basics

Table 2 presented the level of college students' digital literacy ability in terms of hardware and software basics, showing an overall mean of 4.15 with a standard deviation of 0.87, which corresponds to a high descriptive level. This suggested that digital literacy in terms of hardware and software basics was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to properly turning on and off the computer or mobile devices and understanding the different functions of applications or software on a computer or mobile device.

Table 2 also showed that item 1, "I can properly turn on and off a computer or mobile device", had the highest mean of 4.27 and a standard deviation of 0.89 with a descriptive level of very high, and item 4, "I can understand the function of antivirus applications as a device security tool", had the lowest mean of 3.95 and a standard deviation of 0.87, with a descriptive level of high.

The results were conformed by Kudlay (2019), who acknowledged the high level of hardware and software proficiency often demonstrated by college students, essential for navigating today's technologies. Moreover, according to Purwanto and Tawar (2024), students who possess high skills in hardware and software knowledge are more satisfied and productive academically because they possess high critical thinking skills and problem-solving skills leading them to have a smooth online learning experience.

Table 2
Level of College Students' Digital Literacy Ability in terms of Hardware and Software Basics

Items	Mean	SD	Descriptive Equivalent
1. I can properly turn on and off a computer or mobile device.	4.27	0.89	Very High
2. I understand the functions and operate simple features of application, such as shifting pages (scroll), clicking navigation buttons (home, next), and adjusting the volume or screen brightness.	4.24	0.77	Very High
3. I can install and uninstall of simple applications or software.	4.14	0.97	High
4. I can understand the function of antivirus applications as a device security tool.	3.95	0.87	High
Average	**4.15**	**0.87**	**High**

Level of College Students' Digital Literacy Ability in terms of Information and Digital Literacy

Table 3 presented the level of college students' digital literacy ability in terms of information and digital literacy, showing an overall mean of 4.11 with a standard deviation of 0.79, which corresponds to a high descriptive level. This suggested that digital literacy in terms of information and digital literacy was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to ability to search keywords from reliable sources, optimize information and complete tasks in digital sources.

Table 3
Level of College Students' Digital Literacy Ability in terms of Information and Digital Literacy

Items	Mean	SD	Descriptive Equivalent
1. I can choose to search keywords and access simple information with the help of teachers from reliable sources such as official websites or digital reference books.	4.08	0.82	High
2. I can explore simple information and optimize the information feature provided in digital sources, such as QR codes, direct links, embedded sources, etc.	4.09	0.81	High
3. I can use the information obtained to support the completion of assignments given on digital applications, such as quizzes, games, practice questions, etc.	4.18	0.75	High
Average	**4.11**	**0.79**	**High**

Table 3 also showed that item 3, "I can use the information obtained to support the completion of assignments given on digital applications, such as quizzes, games, practice questions, etc.", had the highest mean of 4.18 and a standard deviation of 0.75 with a descriptive level of high, and item 1, "I can choose to search keywords and access simple information with the help of teachers from reliable sources such as official websites or digital reference books", had the lowest mean of 4.08 and a standard deviation of 0.82, with a descriptive level of high.

The results were supported by Nikou et al. (2022), who emphasized that information and digital literacy can directly impact students' ability to navigate information and use technology easily. In addition, according to Erwin and Mohammed (2022), students must have enough knowledge about information and digital literacy ability, especially in this digital society to conduct research, utilize digital platforms and become information fluent.

Level of College Students' Digital Literacy Ability in terms of Communication and Collaboration

Table 4 presented the level of college students' digital literacy ability in terms of communication and collaboration, showing an overall mean of 4.10 with a standard deviation of 0.83, which corresponds to a high descriptive level. This suggested that digital literacy in terms of communication and collaboration was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to ability to participating in online tasks and conveying message effectively through online platforms.

Table 4 also showed that item 3, "I can join activities and participate in assignments through learning applications", had the highest mean of 4.15 and a standard deviation of 0.82 with a descriptive level of high, and item 1, "I can participate in class discussions using technology (e.g., sending answers via learning applications)", had the lowest mean of 4.05 and a standard deviation of 0.84, with a descriptive level of high.

Table 4
Level of College Students' Digital Literacy Ability in terms of Communication and Collaboration

Items	Mean	SD	Descriptive Equivalent
1. I can participate in class discussions using technology (e.g., sending answers via learning applications).	4.05	0.84	High
2. I can convey messages clearly and effectively through learning applications.	4.10	0.82	High
3. I can join activities and participate in assignments through learning applications.	4.15	0.82	High
Average	**4.10**	**0.83**	**High**

The results align with the study of Deschênes (2023), which investigated the significance of digital literacy ability in the hybrid learning environment and concluded that technical digital literacy is essential for the effective use of collaborative technologies, thereby improving college students' perceptions of social proximity. Moreover, according to Intan et al. (2024), the results emphasized how crucial digital transformation initiatives are for enhancing students' digital literacy and increasing overall learning productivity.

Level of College Students' Digital Literacy Ability in terms of Digital Content Creation

Table 5 presented the level of college students' digital literacy ability in terms of digital content creation, showing an overall mean of 3.96 with a standard deviation of 0.80, which corresponds to a high descriptive level. This suggested that digital literacy in terms of communication and collaboration was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to choosing, using, and sharing digital contents (images, videos, drawings and etc.)

Table 5
Level of College Students' Digital Literacy Ability in terms of Digital Content Creation

Items	Mean	SD	Descriptive Equivalent
1. I can take pride in the quality of my digital creations, such as drawings or photo collages.	3.85	0.79	High
2. I can carefully choose and use images, videos, and other content while giving proper credit to the source.	4.19	0.78	High
3. I can confidently create and share simple digital content with others.	3.83	0.84	High
Average	**3.96**	**0.80**	**High**

Table 5 also showed that item 2, "I can carefully choose and use images, videos, and other content while giving proper credit to the source", had the highest mean of 4.19 and a standard deviation of 0.78 with a descriptive level of high, and item 3, "I can confidently create and share simple digital content with others", had the lowest mean of 3.83 and a standard deviation of 0.84, with a descriptive level of high.

The results were supported by Marques et al. (2024), that digital content creation, particularly when it includes multimedia components, boosts student involvement and aids in knowledge retention. Moreover, Snihur et al. (2024), highlighted that digital content creation platforms like Adobe Creative Cloud can effectively cultivate students' creative abilities and enhance their digital literacy ability using visual learning resources.

Level of College Students' Digital Literacy Ability in terms of Security

Table 6 presented the level of college students' digital literacy ability in terms of security, showing an overall mean of 4.04 with a standard deviation of 0.86, which corresponds to a high descriptive level. This suggested that digital literacy in terms of security was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to following school and universal security policies.

Table 6 also showed that item 2, "I am aware of the risks of cyberbullying and take proactive steps to protect myself and others", had the highest mean of 4.05 and a standard deviation of 0.87 with a descriptive level of high, and item 1, "I can carefully review and sort information before inputting personal data on digital applications", had the lowest mean of 4.01 and a standard deviation of 0.87, with a descriptive level of high.

Table 6
Level of College Students' Digital Literacy Ability in terms of Security

Items	Mean	SD	Descriptive Equivalent
1. I can carefully review and sort information before inputting personal data on digital applications.	4.01	0.87	High
2. I am aware of the risks of cyberbullying and take proactive steps to protect myself and others.	4.05	0.87	High
3. Ability to follow school security policies and use digital resources responsibly, such as accessing information during designated study hours.	4.05	0.84	High
Average	**4.04**	**0.86**	**High**

According to the data collated, these aligned with the study of Nguyen et al. (2024), who examined and affirmed the findings linking users' digital literacy levels to their online security behaviors, demonstrating that enhanced digital literacy ability correlates with better security practices and awareness. Additionally, according to Bach (2022), when students lack basic knowledge about digital literacy and cyber security, they are more prone to become victims of cyberbullying or any cyber-attack.

Level of College Students' Digital Literacy Ability in terms of Problem Solving

Table 7 presented the level of college students' digital literacy ability in terms of problem solving, showing an overall mean of 3.72 with a standard deviation of 0.88, which corresponds to a high descriptive level. This suggested that digital literacy ability in terms of problem solving was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to understanding technology issues and resolving digital problems.

Table 7 also presented that item 1, "I can identify and understand common technology issues such as errors, application crashes, or system hangs", had the highest mean of 3.80 and a standard deviation of 0.90 with a descriptive level of high, and item 2, "I can apply effective strategies to troubleshoot and resolve digital problems independently", had the lowest mean of 3.64 and a standard deviation of 0.87, with a descriptive level of high.

Table 7
Level of College Students' Digital Literacy Ability in terms of Problem Solving

Items	Mean	SD	Descriptive Equivalent
1. I can identify and understand common technology issues such as errors, application crashes, or system hangs.	3.80	0.90	High
2. I can apply effective strategies to troubleshoot and resolve digital problems independently.	3.64	0.87	High
Average	**3.72**	**0.88**	High

According to the data collected, the results aligned with the study of Mulhayatiah (2019), who highlighted that digital platforms greatly enhance problem solving abilities by equipping individuals to access, scrutinize, and assess information from multiple digital sources. Additionally, Apriliana et al. (2024), emphasized the challenges in problem solving associated with adapting to new technologies and the crucial role of learning in enhancing both digital literacy and overall productivity.

Level of College Students' Digital Literacy Ability in terms of Career Related Competencies

Table 8 presented the level of college students' digital literacy ability in terms of career related competencies, showing an overall mean of 4.06 with a standard deviation of 0.81, which corresponded to a high descriptive level. This suggested that digital literacy ability in terms of career related competencies was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte when it comes to effective usage of applications or software.

Table 8 also showed that all items had the same mean of 4.06, with a descriptive level of high. However, item 1, "I can use digital devices such as computers, tablets, and interactive whiteboards with confidence", had the highest standard deviation of 0.85 with a descriptive level of high, and item 3, "I can enjoy creating projects or presentations that explore future career opportunities", had the lowest standard deviation of 0.77, with a descriptive level of high.

Table 8
Level of College Students' Digital Literacy Ability in terms of Career Related Competencies

Items	Mean	SD	Descriptive Equivalent
1. I can use digital devices such as computers, tablets, and interactive whiteboards with confidence.	4.06	0.85	High
2. I can effectively use applications or software relevant to specific tasks, such as word processing or spreadsheets.	4.06	0.82	High
3. I can enjoy creating projects or presentations that explore future career opportunities.	4.06	0.77	High
Average	**4.06**	**0.81**	**High**

The results were conformed by Muhammad et al. (2024), who explored the link between career counseling and digital literacy, focusing on how this connection influences career outcomes, which can inform the development of college students' competencies. Moreover, Bejaković, (2020), stated that there is a direct connection between digital literacy and an individual's employability, which encompasses the various factors and processes that help people secure jobs, maintain their employment, and advance in their careers.

Summary on the Level of Digital Literacy Ability

Reflected in Table 9 was the summary of college students' digital literacy ability levels. The overall mean for college students' digital literacy ability is 4.02, with a standard deviation of 0.71, qualitatively characterized as high. This means that college students' digital literacy ability studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte was oftentimes observed. The highest mean of 4.15 with a standard deviation of 0.70 in indicator 1, "Hardware and Software Basics", described as high. The lowest mean of 3.72 with a standard deviation of 0.80 in indicator 6, " Problem Solving", described as high. The results indicated that the college students possess a strong but not exceptional level of digital literacy ability across various seven (7) competencies.

Table 9

Summary on the Level of College Students' Digital Literacy Ability

Indicators	Mean	SD	Descriptive Equivalent
1. Hardware And Software Basics	4.15	0.70	High
2. Information And Digital Literacy	4.11	0.66	High
3. Communication And Collaboration	4.10	0.71	High
4. Digital Content Creation	3.96	0.66	High
5. Security	4.04	0.73	High
6. Problem Solving	3.72	0.80	High
7. Career Related Competencies	4.06	0.68	High
Overall	**4.02**	**0.71**	**High**

The result was conformed by Naz (2022), presented that students who are digitally literate tend to have better digital navigation skills performance in higher education institutions compared to those who lack computer skills. In addition, according to Hafida (2025), becoming digital literate and possessing high ability, students become more empowered because they can analyze content, assess the credibility of their resources, avoid misinformation, foster critical thinking, digital protection and digital identity. Moreover, Ouahidi (2020), stated that a student who has not developed his/her digital competence would inevitably find it difficult to thrive in a world that is becoming more and more digital.

Level of College Students' Blended Learning Course Experience in term of Course Design

Table 10 presented the level of college students' blended learning course experience in terms of course design, showing an overall mean of 4.02 with a standard deviation of 0.78, corresponding to a high descriptive level. This suggested that blended learning course experience in terms of course design was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte.

Table 10 also showed that item 1, "I clearly understand the course objectives, learning activities, and assignments provided in the online course", had the highest mean of 4.20 and a standard deviation of 0.72 with a descriptive level of very high, and item 9, "I have an overall excellent experience with this course", had the lowest mean of 3.82 and a standard deviation of 0.85, with a descriptive level of high.

The results were aligned with the study of Levinsson et al. (2024), which highlighted that effective course design is crucial for student engagement, perceived quality, and ultimately, student learning. Similarly, Ma and Lee (2022), highlighted the need to understand the learning experiences for students in blended course designs, acknowledging that an effective course design is important for improving positive experiences and attaining varied educational outcomes.

The results aligned by Bouilheres et al. (2020), who investigated the effects of blended learning experiences and discovered that when it is appropriately implemented, students can benefit from various aspects of learning experiences. Similarly, according to Tang et al. (2023), blended learning can increase performance, attitude, and learning experiences for students.

Table 11
Level of College Students' Blended Learning Course Experience in terms of Learning Experience

Items	Mean	SD	Descriptive Equivalent
1. I benefit from the multimedia resources on the learning management system, which enhance my learning experience.	4.11	0.75	High
2. I improve my learning through online interactions with students and the lecturer.	4.04	0.87	High
3. I develop better time-management skills through blended learning.	3.92	0.77	High
4. I enhance my digital literacy skills with the help of blended learning.	3.99	0.76	High
5. I see an improvement in my academic performance through the use of blended learning.	4.03	0.76	High
6. I enjoy the flexibility of learning anytime, anywhere, and at my own pace.	3.96	0.78	High
7. I find the online mobile app useful for viewing learning resources, interacting with faculty and peers, and submitting assignments and quizzes.	4.00	0.81	High
Average	**4.01**	**0.78**	**High**

Level of College Students' Blended Learning Course Experience in terms of Personal Factor

Table 12 presented the level of blended learning course experience in terms of personal factor, showing an overall mean of 4.09 with a standard deviation of 0.81, which corresponded to a high descriptive level. This suggested that blended learning course experience in terms of personal factor was oftentimes observed among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte.

Table 12
Level of College Students' Blended Learning Course Experience in terms of Personal Factor

Items	Mean	SD	Descriptive Equivalent
1. I feel confident and engaged in this course.	4.01	0.79	High
2. I use technology effectively to enhance my learning experience.	4.21	0.79	High
3. I commit the necessary time and effort to successfully complete this course.	4.06	0.85	High
Average	**4.09**	**0.81**	**High**

Table 12 also showed that item 2, “I use technology effectively to enhance my learning experience”, had the highest mean of 4.21 and a standard deviation of 0.79 with a descriptive level of high, and item 1, “I feel confident and engaged in this course”, had the lowest mean of 4.01 and a standard deviation of 0.79, with a descriptive level of high.

The results aligned with the study of Aswegen and Pendergast (2023), which indicated that curiosity and interest play key roles in cognitive growth and educational achievement. ‘Interest’ is often seen as a significant motivational element that fuels learning and is considered vital for academic success, as students who have genuine interests are more inclined to focus. Furthermore, Dewey (1938) argued that learning ought to be student-focused rather than instructor-centered, a shift that invites learners to engage with their courses out of genuine interest and to move beyond conventional concepts, as highlighted by Prayitno (2023).

Summary of College Students’ Blended Course Experience

Reflected in Table 13 was a summary of college students' blended learning course experience. The overall mean for college students' blended learning course experience is 4.04, with a standard deviation of 0.61, qualitatively characterized as high. This means that college students’ blended learning course experience studying in a local college institution in the Municipality of Santo Tomas, Davao del Norte was oftentimes observed. The highest mean was 4.09 in indicator 3, "Personal Factor", described as high. While the lowest mean of 4.01 is indicator 2, "Learning Experience", described as high. The results indicated that college students studying in a local college institution in the Municipality of Santo Tomas, Davao del Norte had a positive blended learning course experience but not totally perfect.

Table 13
Summary on the Level of College Students’ Blended Learning Course Experience

Indicators	Mean	SD	Descriptive Equivalent
1. Course Design	4.02	0.55	High
2. Learning Experience	4.01	0.59	High
3. Personal Factor	4.09	0.69	High
Overall	**4.04**	**0.61**	**High**

The results shown in Table 13 aligned to the results of a study by Tong et al. (2022), which shown that students blended learning course experience could be improved by giving the students access to more devices and tools essential in blended learning such as tablets and laptops. In addition, according to Buhl-Wiggers (2022), students who are apprehensive in the blended learning experience could find themselves lag those who are adaptive since the digital landscape, one of the primary methods of blended learning, has a very dynamic nature.

Correlation between Digital Literacy Ability and Blended Learning Course Experience

Table 14 presented the correlation between digital literacy ability and blended learning course experience among college students studying in a local higher education institution in the Municipality of Santo Tomas, Davao del Norte. The data indicated that an overall r-value of 0.583, coupled with a p-value of 0.000 (less than 0.05), leads to the rejection of the null hypothesis. This demonstrated a positive medium significant relationship between digital literacy ability and the blended learning course experience.

The findings suggested that the level of digital literacy ability had a meaningful and positive influence on the blended learning course experience. In essence, a higher level of digital literacy ability in the modern education enhanced their ability to navigate online learning platforms, engage with digital resources, and adapt to technology-driven education. Consequently, improving digital literacy ability helped bridge the pressing problems in blended learning course experience, ensuring a more equitable and effective learning experience in modern education.

Table 14
Significance of the Relationship Between College Students' Digital Literacy Ability and Blended Learning Course Experience

Variables Correlated	r	p-value	Decision on H_o	Decision on Relationship
College Students' Digital Literacy Ability and Blended Learning Course Experience	0.583	0.000	Rejected	Significant

The significance of the relationship between college students' digital literacy ability and blended learning course experience was shown in Table 14, in conformity with Sweller's (1988) Cognitive Load Theory (CLT), which emphasized the importance of optimizing instructional design to manage learners' cognitive load for improved understanding and retention. In addition, according to Chandler (2023), when it comes to blended learning, utilizing CLT principles can assist in achieving a better equilibrium of information dissemination between online and in-person formats, thereby mitigating the potential for cognitive overload.

Furthermore, the Technological Pedagogical Content Knowledge (TPACK) theory in 2006 emphasizes the significance of combining technological expertise with teaching methods to improve learning outcomes and positively impacted their academic performance, reinforcing the relevance of TPACK in blended learning environments. In addition, Kurt et al. (2022), developed a blended learning model grounded in TPACK theory, aimed at enhancing computer and information literacy skills among undergraduate students.

Moreover, as stated by Sari and Wahyudin (2022), a comprehensive approach that includes digital literacy, the integration of technology, and robust support is necessary to optimize the effectiveness of blended learning

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary Of Findings

The major findings of the study were the following:

1. The level of digital literacy ability among college students studying in a higher education institution in the Municipality of Santo Tomas, Davao del Norte, had an overall mean of 4.02 with a descriptive equivalent of high. It obtained an overall standard deviation of 0.71, indicating that digital literacy ability among college students was oftentimes observed. The highest indicator was Hardware and Software Basics with a mean of 4.15, while the lowest was Problem Solving with a mean of 3.72.

2. The level of blended learning course experience among college students studying in a higher education institution in the Municipality of Santo Tomas, Davao del Norte, had an overall mean of 4.04 with a descriptive equivalent of high. It obtained an overall standard deviation of 0.61, indicating that blended learning course experience among college students was oftentimes observed. The highest indicator was Personal Factor with a mean of 4.09, while the lowest was Learning Experience with a mean of 4.01.

3. The relationship between digital literacy ability and blended learning course experience among college students studying in a higher education institution in the Municipality of Santo Tomas, Davao del Norte, shown positive correlation with an r-value of 0.583 and a p-value of 0.000, which was lower than the level of significance of 0.05. Moreover, these results lead to the rejection of the null hypothesis.

Conclusions

Based on the findings of this study, the following statements were constructed:

1. The level of digital literacy ability among college students studying in a higher education institution in the Municipality of Santo Tomas, Davao del Norte, revealed a high descriptive equivalent and was oftentimes

observed. The overall findings of digital literacy ability suggest that college students were equipped to engage and navigate with digital platforms and can be ready to adapt to evolving technological demands.

2. The level of blended learning course experience among college students studying in a higher education institution in the Municipality of Santo Tomas, Davao del Norte, revealed a high descriptive equivalent and was oftentimes observed. The overall findings of the blended learning course experience suggested that college students were having a good experience in blended learning and were adapted to the mixed learning modality, which can enhance their learning flexibility and technological proficiency.

3. The results shown the significance of the relationship between digital literacy ability and blended learning course experience, indicating a positive, medium, and significant correlation. It indicated that blended learning course experience was greatly impacted by digital literacy ability, improving digital literacy ability helps bridge the pressing problems in blended learning course experience, ensuring a more equitable and effective learning experience in modern education.

Recommendations

Based on the findings and conclusions of the study, the subsequent recommendations were offered:

1. Higher education institutions may integrate targeted training programs focused on critical thinking and digital problem-solving. Workshops, interactive modules, and real-world simulations helped students develop analytical skills necessary for troubleshooting digital challenges.

2. Higher education institutions may prioritize interactive and engaging instructional strategies that improve overall learning experiences. This included incorporating multimedia resources, gamified learning, and interactive discussions to maintain student engagement in both online and face-to-face settings.

3. Higher education institutions may recognize the strong correlation between digital literacy and blended learning course experience by integrating comprehensive digital literacy training into blended learning programs. Enhancing students' proficiency in digital tools, online research, and problem-solving skills may improve their ability to navigate blended learning environments effectively.

4. Faculty members may guide students through mentorship, clear guidelines, and timely feedback to help them navigate complex digital environments. Thus, they may incorporate interactive digital activities and adaptive learning technologies to address any gaps in digital competency. Regular assessments and feedback may further refine instructional strategies, ensuring effective learning in both online and face-to-face settings.

5. College students may widen their span of understanding regarding the importance of digital literacy ability in a blended learning modality as they may be the most affected by it through continuous exposure to digital tools and platforms essential for learning.

6. Future researchers may explore additional variables that connects the relationship between digital literacy ability and the blended learning course experience among college students. This knowledge would be crucial for developing more effective strategies to bridge the digital literacy ability problems and ultimately contribute to a more effective and successful blended leaning course experience.

REFERENCES

1. Afandi, A. N. H., Pristiani, R., Kusumaningrum, S. R., & Dewi, R. S. I. (2024). Digital literacy questionnaire instrument: Based on the integration of elementary school students' characteristics. International Journal of Elementary Education, 8(2), 344–353. https://doi.org/10.23887/ijee.v8i2.76773
2. Aivaz, K. A., & Teodorescu, D. (2022). College students' distractions from learning caused by multitasking in online vs. face-to-face classes: A case study at a public university in Romania.

International journal of environmental research and public health, 19(18), 11188. https://doi.org/10.3390/ijerph191811188

3. Alvarez Jr, A. V. (2020). Learning from the Problems and Challenges in Blended Learning: Basis for Faculty Development and Program Enhancement. Asian Journal of Distance Education, 15(2), 112-132. https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/433
4. Anduyan, D. B. (2021). Effectiveness of Blended Learning Modules as Correlates of Self-Efficacy of ALS Studemts: Basis for an Action Plan. International Journal of Multidisciplinary: Applied Business and Education Research. 2(11), 1043 – 1060. doi: 10.11594/ijmaber.02.11.06
5. Apriliana, Dian, Fadillah., Marsofiyati, Marsofiyati. (2024). Penerapan Teknologi Digital Pada Administrasi Perkantoran. Optimal, 4(2):234-241. doi: 10.55606/optimal.v4i2.3547
6. Aswegen, E. C., & Pendergast, D. (2023). The impact of interest: an emergent model of interest development in the early years. Early Child Development and Care, 193(13–14), 1335–1349. https://doi.org/10.1080/03004430.2023.2245575
7. Bach, E. (2022). The impact of digital literacy on the cyber security of digital citizens. Economic and Social Development: Book of Proceedings, 196-204. https://www.zbw.eu/econis-archiv/bitstream/11159/8729/1/1807046117_0.pdf#page=202
8. Basar, Z. M., Mansor, A. N., Jamaludin, K. A., & Alias, B. S. (2021). The effectiveness and challenges of online learning for secondary school students–A case study. Asian Journal of University Education, 17(3), 119-129. https://doi.org/10.24191/ajue.v17i3.14514
9. Basri, H. (2024). The Effectiveness of Blended Learning, Digital Literacy Programs, and Teacher Training on Student Outcomes in 2024. Global International Journal, 2(5). https://doi.org/10.59613/global.v2i8.249
10. Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., ... & Reyes, J. C. B. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. Medical science educator, 31, 615-626. doi: 10.1007/s40670-021-01231
11. Bejaković, P., & Mrnjavac, Ž. (2020). The importance of digital literacy on the labour market. Employee Relations: The International Journal, 42(4), 921-932. https://doi.org/10.1108/ER-07-2019-0274
12. Bhagat, K. K. (2020). The impact of blended learning at the Uganda Management Institute. https://www.researchgate.net/publication/342916704_The_Impact_of_Blended_Learning_at_the_Uganda_Management_Institute
13. Bhandari, P. (2022, November 24). What Is Quantitative Research? | Definition, Uses & Methods. Scribbr. https://www.scribbr.com/methodology/quantitative-research/
14. Bouilheres, F., Le, L. T. V. H., McDonald, S., Nkhoma, C., & Jandug-Montera, L. (2020). Defining student learning experience through blended learning. Education and Information Technologies, 25(4), 3049–3069. https://doi.org/10.1007/s10639-020-10100-y
15. Brodowicz, M. (2024). Descriptive correlational design in research. Aithor. https://aithor.com/essay-examples/descriptive-correlational-design-in-research
16. Buhl-Wiggers, J., Kjærgaard, A., & Munk, K. (2022). A scoping review of experimental evidence on face-to-face components of blended learning in higher education. Studies in Higher Education, 48(1), 151–173. https://doi.org/10.1080/03075079.2022.2123911
17. Cajucom, E., Lopez, I., Valdez, J., Villanueva, J., Balonquita, W., & Sonday, J. A. (2022). Readiness in Adopting a Blended Learning Approach in Science: Challenges Encountered and Breakthroughs. Psychology and Education: A Multidisciplinary Journal, 3(3), 220-237. doi: 10.5281/zenodo.6894382
18. Chandler, P. (2023). A Cognitive Load Theory Perspective. Journal of Management Education. https://doi.org/10.1177/10525629231200206
19. Dabalos, J. (2021). Making Ends Meet: A Survey on Adapting Flexible Learning amidst the COVID-19 Pandemic of the BSIT Program in Davao del Norte State College. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(3), 4735-4739. https://doi.org/10.17762/turcomat.v12i3.1896
20. De Leon, J. A., Orillo, J. C., Mayol, A. P., Concepcion, R. S., Vicerra, R. R., Bandala, A., ... & San Juan, J. L. (2023, November). Distance Learning During the COVID-19 Pandemic: An Exploratory Data Analysis on a Philippine Public Junior High School. In 2023 IEEE 15th International Conference

on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management (HNICEM) (pp. 1-6). IEEE. https://doi.org/10.1109/HNICEM60674.2023.10589033

21. Deschênes, A. A. (2024). Digital literacy, the use of collaborative technologies, and perceived social proximity in a hybrid work environment: Technology as a social binder. Computers in Human Behavior Reports, 13, 100351. https://doi.org/10.1016/j.chbr.2023.100351
22. Devi, R. A. N. J. I. T. A., Pradhan, S. H. R. I. J. A. N. A., Giri, D. O. M. A., Lepcha, N. A. Z. U. N. G., & Basnet, S. H. A. K. E. E. L. A. (2022). Application of correlational research design in nursing and medical research. Journal of Xi'an Shiyou University, Natural Sciences Edition, 65(11), 60-69. DOI: 10.17605/OSF.IO/YRZ68
23. Erwin, K., & Mohammed, S. (2022). Digital literacy skills instruction and increased skills proficiency. International Journal of Technology in Education and Science (IJTES), 6(2), 323-332. https://doi.org/10.46328/ijtes.364
24. Graham, C. R., & Halverson, L. R. (2022). Blended learning research and practice. In Handbook of open, distance and digital education (pp. 1-20). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-19-0351-9_68-1
25. Hafida, B. (2025). Digital Media Literacy as a Mechanism for Developing Digital Awareness among University Students in the Virtual Environment-Proposed Framework. مجلة الحكمة للدراسات الفلسفية, 13(1), 144-164. https://asjp.cerist.dz/index.php/en/article/263134
26. Hudson, W. (2025, January 9). Higher education faced mounting enrollment and security challenges in 2024. Diverse: Issues In Higher Education. https://www.diverseeducation.com/institutions/article/15711331/higher-education-faced-mounting-enrollment-and-security-challenges-in-2024
27. Indrajaya, K., Qaribilla, R., & Mayawati, C. I. (2024). Digital learning inequality: The role of socioeconomic status in access to online education resources. International Journal of Social and Human, 1(2). https://doi.org/10.59613/55gdmt96
28. Intan, Suci, Kasih, Pertiwi., Martha, Tri, Lestari. (2024). Digital literacy analysis: A case study of Telkom Indonesia in exploring its work environment dynamics. Bricolage, 10(2):231-231. doi: 10.30813/bricolage.v10i2.5321
29. Kudlay, V. O. (2019). Formation of digital literacy of the individual in the modern information space. Notes on Ukrainian Linguistics , 2 (26), 160-168. https://doi.org/10.18524/2414-0627.2019.26.181707
30. Kurt, G., Mishra, P., & Koehler, M. J. (2022). Technological pedagogical content knowledge-based blended learning model to enhance computer and information literacy. Education and Information Technologies, 27(1), 123–143. https://doi.org/10.1007/s10639-021-10597-8
31. Levinsson, H., Nilsson, A., Mårtensson, K., & Persson, S. D. (2024). Course design as a stronger predictor of student evaluation of quality and student engagement than teacher ratings. Higher Education, 1-17. https://doi.org/10.1007/s10734-024-01197-y
32. Li, A., Zhang, S., Feng, Z., & Zhang, Q. (2020). Research on calculation method of mean in sports statistical data with excels. International Journal of Computer and Communication Engineering, 9(3), 141-148. doi: 10.17706/ijcce.2020.9.3.141-148
33. Ma, J., & Lee, J. (2022). University student learning in blended course designs. Frontiers in Psychology, 13, 905592. https://doi.org/10.3389/fpsyg.2022.905592
34. Marques, C. G., Mateus, L., & Araújo, I. (2024). Digital transformation in higher education institutions: a case study at Polytechnic University of Tomar. In Digital Transformation in Higher Education Institutions (pp. 41-58). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-52296-3_3
35. Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers college record, 108(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x
36. Muhammad, Arif, Budiman, Sucipto. (2024). Digital Literacy and Career Guidance: A Study on University Students in Indonesia. West Science Social and Humanities Studies/West Science Social And Humanities Studies, 2(05):888-898. doi: 10.58812/wsshs.v2i05.938

37. Muhria, L., Supriatna, N., & Nurfirdaus, N. (2023). Students' challenges of blended learning model in higher education. Journal Corner of Education, Linguistics, and Literature, 2(3), 223-233. https://doi.org/10.54012/jcell.v2i3.123
38. Mulhayatiah, D., Purwanti, P., Setya, W., Suhendi, H. Y., Kariadinata, R., & Hartini, S. (2019). The impact of digital learning module in improving students' problem-solving skills. Jurnal Ilmiah Pendidikan Fisika Al-Biruni, 8(1), 11-22. DOI: 10.24042/jipfalbiruni.v8i1.3150
39. National Economic and Development Authority Region XI. (2020). SDC XI calls for support on the implementation of the distance learning delivery modalities in Davao Region. National Economic and Development Authority. https://nro11.neda.gov.ph/sdc-xi-calls-for-support-on-the-implementation-of-the-distance-learning-delivery-modalities-in-davao-region/
40. Naz, F. L., Raheem, A., Khan, F. U., & Muhammad, W. (2022). An effect of digital literacy on the academic performance of university-level students. Journal of Positive School Psychology, 6(8), 10720-10732. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=An+Effect+Of+Digital+Literacy+On+The+Academic+Performance+Of+University-Level+Students&btnG=
41. Nguyen, T. D., Shih, M., Srivastava, D., Tirthapura, S., & Xu, B. (2020). Stratified random sampling from streaming and stored data. Distributed and Parallel Databases, 39(3), 665–710. https://doi.org/10.1007/s10619-020-07315-w
42. Nguyen, T. T., Tran, T. N. H., Do, T. H. M., Dinh, T. K. L., Nguyen, T. U. N., & Dang, T. M. K. (2024). Digital literacy, online security behaviors and E-payment intention. Journal of Open Innovation: Technology, Market, and Complexity, 10(2), 100292. https://doi.org/10.1016/j.joitmc.2024.100292
43. Nikou, S., De Reuver, M. and Mahboob Kanafi, M. (2022), "Workplace literacy skills—how information and digital literacy affect adoption of digital technology", Journal of Documentation, Vol. 78 No. 7, pp. 371-391. https://doi.org/10.1108/JD-12-2021-0241
44. Ouahidi, L. M. (2020). Constraints on developing digital literacy skills in higher education. International Journal of Linguistics, Literature and Translation (IJLLT). DOI: 10.32996/ijllt.2020.3.2.22
45. Phan, T. C., Van Tran, H., Truong, T. D., Le, H. T., & Phan, D. M. (2024). Developing Information Technology Competence in Online Education with the TPACK Approach. Vietnam Journal of Education, 166-176. https://doi.org/10.52296/vje.2024.361
46. Prayitno, A. (2023). Technological innovation in public administration transformation: case study of e-government implementation in indonesia. Journal of Governance, 8(4), 387-402. http://dx.doi.org/10.31506/jog.v8i4.23017
47. Purwanto, A., & Tawar, T. (2024). Investigating The Role of the use of computer Hardware, software and lecturer involvement on online universities student satisfaction. UJoST-Universal Journal of Science and Technology, 3(1), 1-13. http://ujost.org/index.php/journal/article/view/132.
48. Rianto, A. (2020). Blended Learning Application in Higher Education: EFL Learners' Perceptions, Problems, and Suggestions. Indonesian Journal of English Language Teaching and Applied Linguistics, 5(1), 55-68. https://doi.org/10.21093/ijeltal.v5i1.574
49. Salmons, J. (2023, February 3). Quantitative research with nonexperimental designs. Sage Research Methods Community. https://researchmethodscommunity.sagepub.com/blog/quantitative-research-with-non-experimental-designs
50. Santos, A. P. (2020). In the Philippines, distance learning reveals the digital divide. The Heinrich-Böll-Stiftung European Union. https://us.boell.org/en/2020/10/06/philippines-distance-learning-reveals-digital-divide?fbclid=IwAR3bqylzWvyCuk-VTjfGlInxUGGSWEi6t6FQpmIs0CqisDx9MYW1ZS2QJ-Y
51. Sari, N., & Wahyudin, D. (2022). The role of support system, digital literacy, and learning strategy on student learning outcomes in blended learning environment. International Journal of Instruction, 15(1), 237–254. https://files.eric.ed.gov/fulltext/EJ1427730.pdf
52. Simkus, J. (2023). Stratified Random Sampling: Definition, Method & Examples. Simply Psychology. https://www.simplypsychology.org/stratified-random-sampling.html

53. Snihur, O., Jamshid, A. M., Golubytskyi, S., Hrechko, A., & Prockopets, K. (2024). Using Adobe Creative Cloud to create multimedia content in higher education institutions. Salud, Ciencia y Tecnología - Serie de Conferencias, 4, 1311. https://doi.org/10.56294/sctconf20251311
54. Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. Cognitive Science, 12(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4
55. Tang, Y., Chen, P., & Law, K. M. Y. (2023). A meta-analysis of effects of blended learning on performance, attitude, and engagement. Frontiers in Psychology, 14, 1212056. https://doi.org/10.3389/fpsyg.2023.1212056
56. Tong, D. H., Uyen, B. P., & Ngan, L. K. (2022). The effectiveness of blended learning on students' academic achievement, self-study skills and learning attitudes: A quasi-experiment study in teaching the conventions for coordinates in the plane. Heliyon, 8(12). https://doi.org/10.1016/j.heliyon.2022.e12657
57. Weisburd, D., Britt, C., Wilson, D. B., Wooditch, A., Weisburd, D., Britt, C., ... & Wooditch, A. (2020). Measuring Association for Scaled Data: Pearson's Correlation Coefficient. Basic Statistics in Criminology and Criminal Justice, 479-530. https://doi.org/10.1007/978-3-030-47967-1_14