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Assessing the effectiveness of blended learning for BS Criminology in Occidental Mindoro State College

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Abstract

This study employed a quantitative research design with a descriptive-correlational approach to assess the effectiveness of blended learning for BS Criminology students and identify challenges encountered during this learning modality. The research focused on analyzing the level of effectiveness, challenges faced, the relationship between these factors, differences based on year level, and proposing relevant policies. Data collection was conducted using a self-constructed survey questionnaire distributed to 300 students from the BS Criminology program at Occidental Mindoro State College, Sablayan Campus. The survey results indicated that blended learning was generally perceived as effective, with fourth-year students rating it higher in areas such as teacher-student communication and technology integration. These students demonstrated a greater familiarity with blended learning, while second-year students encountered more challenges, particularly in balancing online and face-to-face learning. The study found a significant relationship between the perceived effectiveness of blended learning and the extent of challenges, suggesting that students who viewed blended learning as more effective experienced fewer obstacles. Additionally, the research identified differences in effectiveness across year levels. Data analysis utilized weighted mean, Spearman's rho, and one-way analysis of variance (ANOVA) to evaluate the findings. Based on the results, the study recommended implementing policies to enhance technological support, improve teacher-student communication, and provide tailored resources to help younger students adjust to the blended learning environment more effectively. These policies aim to address the varying needs of students across different year levels and improve overall learning outcomes.

Keywords: criminology, blended learning, effectiveness, challenges

Assessing the effectiveness of blended learning for BS Criminology in Occidental Mindoro State College

1. Introduction

The field of criminology has seen significant advancements due to the integration of technology into education. It helps students manage their time, save money, and access courses from anywhere with an internet signal. It is also less expensive and more accessible to a broader spectrum of students. This approach addresses challenges like knowledge explosions, overcrowded lectures, and growing educational demand. Blended learning, combining virtual classrooms and online platforms, offers greater control, clarity, and accessibility for students worldwide. During the COVID-19 pandemic, the education industry promoted remote teaching via television, online teaching, and the Internet for effective learning. (Attard & Holmes, 2020). Due to the increasing number of COVID-19 cases in the country, educational institutions adopted various approaches that could cater to the students' needs and abide by the health protocol at the same time. This study looks into the effect of blended learning on the academic performance of BS Criminology students. The results of the study noted that there was a significant difference in the students' academic performances before and during the implementation of blended learning. The study further showed that BS Criminology students performed better with the traditional learning approach than with blended learning. (Mukay et al, 2023).

Some student characteristics, backgrounds, and design features are significant predictors of student learning. It showed that blended learning design features such as technology quality, online tools, and face-to-face support and student characteristics such as attitudes and self-regulation predicted student satisfaction as an outcome. (Kintu, Zhu, and Kagambe, 2017). In foreign countries blended learning, which is well-known as cross- and mixed-mode learning, is merging online and face-to-face pedagogical methods. Like Asian countries, different scientific articles in the educational literature focus on blended learning. (Gaol & Hutagalong, 2020).

The shift to online education during the COVID-19 pandemic presented new challenges in online distance learning, necessitating a focus on new factors influencing user satisfaction (Chen, 2020). This need aligns with Lemos and Pedro's (2012) observation of a knowledge gap regarding student experiences in e-learning initiatives, despite their central role in the educational process. This research aims to explore the effectiveness of the blended learning approach for criminology students, examining its impact on student outcomes, satisfaction, and skill development. By identifying the benefits and limitations of this educational model, this study seeks to inform educators, policymakers, and institutions about the potential of blended learning to drive innovation in criminology education.

1.1 Objective of the Study

- Determine the level of effectiveness of blended learning for BS Criminology
- Determine the extent of challenges encountered by the BS Criminology students during their blended learning.
- To test if there a significant relationship between the level of effectiveness of blended learning of the BS Criminology Students and the extent of challenges encountered in the conduct of blended learning.
- To identify the significant difference in the effectiveness of blended learning in terms of the aforementioned variables when respondents are grouped according to their year level.
- Based on the findings, what policies, procedures, and guidelines may be proposed

2. Methodology

This study employs a quantitative research design with a descriptive-correlational approach, enabling the researcher to analyze relationships among variables numerically and statistically. The primary goal is to determine the level of effectiveness and identify challenges associated with blended learning. The study uses survey questionnaires and observations as the main data collection tools, ensuring that the research objectives are adequately addressed and relevant information is gathered. The data were collected from a population of 300 students enrolled in the BS Criminology program at Occidental Mindoro State College, Sablayan Campus. The researcher designed and developed a self-constructed survey questionnaire tailored to the study's specific objectives. The questionnaire utilized a 4-point Likert scale, with clearly defined interpretations for the level of effectiveness (e.g., 1 = "Very Ineffective" to 4 = "Very Effective") and the seriousness of challenges (e.g., 1 = "Not Serious" to 4 = "Very Serious"). This format was selected to ensure clarity and consistency in respondents' answers. Additionally, prior studies were reviewed to validate the questionnaire, and expert input was sought to enhance its reliability and alignment with research objectives.

Before data collection, the researcher secured permission from the Dean of the College of Criminal Justice Education (CCJE) through a formal letter of approval. Upon approval, the survey questionnaires were administered to the participants, accompanied by clear instructions to ensure their proper understanding and completion. The researcher also conducted observations to complement the survey data, adding depth to the analysis and supporting the findings. The collected data were analyzed using appropriate statistical methods to ensure accuracy and reliability. The weighted mean was employed to determine central tendencies, while Spearman's rho was used to examine correlations between variables. To identify significant differences across groups, a one-way analysis of variance (ANOVA) was applied. These statistical tools were chosen for their robustness in analyzing ordinal data and identifying patterns, relationships, and variances within the dataset.

To enhance the validity and reliability of the study, the survey questionnaire underwent expert validation and pilot testing. The validation process ensured that the questions were clear, relevant, and aligned with the research objectives. Pilot testing helped identify and resolve potential ambiguities or biases in the questions, ensuring accurate data collection. Furthermore, the study's reliance on proven statistical methods and triangulation through both surveys and observations added to its credibility. By employing this systematic methodology, the study provides evidence-based conclusions and actionable insights into the effectiveness and challenges of blended learning for BS Criminology students.

3. Results

Personal Growth. Table 1 presents the perceptions of second-year, third year, and fourth-year students regarding the effectiveness of blended learning, which is generally viewed as Effective (E) across all year levels, with some variations in responses. These variations reveal important implications regarding the adaptability and experiences of students at different stages of their academic journey.

For second-year students, the overall mean score of 3.24 (SD = 0.44) reflects a positive reception to blended learning, particularly in terms of adapting to the new normal (M = 3.34, SD = 0.53) and engaging in social presence and interaction (M = 3.28, SD = 0.54). This suggests that, despite being relatively new to blended learning, second-year students are able to adapt to technological integration and social engagement, as emphasized by Hrastinski (2019), who pointed out that blended learning improves students' adaptability by combining online and offline methods. However, the slight variability in standard deviations (SD) signals that not all students have the same level of comfort with these aspects, possibly due to different learning backgrounds or initial apprehension towards blended formats.

Third-year students demonstrate a slight increase in their overall mean score to 3.30 (SD = 0.53), with a stronger appreciation for adaptability (M = 3.38, SD = 0.61) and self-assessment (M = 3.34, SD = 0.60). This higher score

suggests that third-year students are becoming more autonomous and reflective in their learning processes, aligning with Bernard et al. (2014), who found that blended learning enhances self- regulation and personal reflection. The slight variability in their responses, reflected by higher standard deviations, may imply that while students are benefiting from these aspects, individual experiences with the flexibility of blended learning still vary. This variability could be attributed to the differences in how instructors structure their courses, as noted by Cleveland-Innes and Wilton (2018), who emphasized the crucial role of instructors in creating effective blended learning experiences.

Fourth-year students exhibit the highest overall satisfaction with a mean score of 3.60 (SD = 0.51), highlighting their growing familiarity with blended learning. Their positive views on teacher-student communication (M = 3.68, SD = 0.59) and the breakdown of barriers through mixed learning methods (M = 3.65, SD = 0.59) are particularly significant. These findings are consistent with Garrison and Kanuka (2004), who observed that blended learning fosters stronger teacher-student connections, especially among more experienced students. This suggests that fourth-year students, having spent more time in a blended environment, are able to leverage both online and face-to-face interactions to build more meaningful relationships with their instructors and peers.

Table 1
Level of Effectiveness of Blended Learning in terms of Personal Growth

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
Through blended learning, students can discover their own capacity to adapt to the new normal by doing activities online and in person.	3.34	0.53	E	3.28	0.67	E	3.47	0.64	E
Blended learning promotes flexibility in various learning styles.	3.22	0.55	E	3.26	0.70	E	3.58	0.70	E
It boosts an individual's ability to adjust to changing conditions/ circumstances and new challenges.	3.25	0.54	E	3.38	0.61	E	3.56	0.68	VE
In blended learning there is a positive teacher-student and peer-to-peer relationship in terms of communication	3.23	0.55	E	3.25	0.68	E	3.68	0.59	VE
Blended learning cuts the barriers brought by the distance between the teachers and students through online and in-person teaching and learning methods.	3.19	0.60	E	3.31	0.64	E	3.65	0.59	VE
It allows students to take ownership of their learning journey, contributing to their sense of responsibility and independence.	3.22	0.54	E	3.31	0.62	E	3.61	0.65	VE
Blended learning environments provide opportunities for self- assessment and reflection for students to track their progress, identify strengths and limitations, and cultivate self-awareness.	3.22	0.51	E	3.34	0.60	E	3.67	0.51	VE
Students in a blended learning environment often have to take the initiative in finishing online modules, participating in conversations, and meeting deadlines.	3.26	0.58	E	3.27	0.66	E	3.61	0.58	VE
Blended learning allows students to work at their own pace which lessens stress levels.	3.2	0.62	E	3.28	0.63	E	3.58	0.63	VE
Students in blended learning engage in social presence and interaction.	3.28	0.54	E	3.34	0.57	E	3.65	0.57	VE
Overall Mean	3.24	0.44	E	3.3	0.53	E	3.6	0.51	E

The Very Effective (VE) rating also implies that with increased exposure, students become more proficient in

navigating both the technological and interpersonal dynamics of blended learning. The trend of increasing satisfaction from second- to fourth-year students points to the role of academic maturity in shaping students' perceptions of blended learning. As Vaughan (2007) and Owston et al. (2019) suggest, senior students are typically more adept at managing self-directed learning and collaborative work, allowing them to fully benefit from the flexible, interactive nature of blended learning. This progression highlights that, as students advance in their academic journey, they develop greater proficiency in balancing the demands of different learning modalities, ultimately leading to a more rewarding and effective learning experience. The implications of these findings underscore the importance of scaffolding blended learning environments effectively to meet the evolving needs of students at different stages of their education.

Instructor Competency and Effectiveness. Table 2 provides insights into students' perceptions of the effectiveness of blended learning based on several instructional indicators across different academic levels. The overall mean scores indicate a gradual increase in satisfaction from second-year students (M = 3.23, SD= 0.48), to third-year students (M = 3.33, SD = 0.53), and the highest among fourth-year students (M = 3.54, SD = 0.59). This progression suggests that as students advance through their academic journey, they develop a more positive perception of blended learning, viewing it as more effective in facilitating their learning experience. Notably, fourth-year students rated several aspects as Very Effective (VE), indicating greater satisfaction with blended learning compared to the lower-year levels, who rated the learning experience as merely Effective (E).

One key finding is that fourth-year students perceive instructors as more capable of fluidly shifting between in-person and online methods (M = 3.59, SD = 0.63) and skillfully integrating multimedia and interactive resources (M = 3.62, SD = 0.63) to enhance the learning experience. These aspects were viewed as Very Effective by fourth-year students, compared to the lower mean scores from second-year (M = 3.22, SD = 0.59) and third-year students (M = 3.31, SD = 0.59). This shift in perception highlights the growing familiarity and comfort of senior students with blended learning, as they are likely more experienced in navigating the technological and pedagogical dynamics of this approach. Moreover, fourth-year students place high value on the instructor's prompt feedback and personalized guidance (M = 3.56, SD = 0.61), which is seen as a key factor in facilitating their development and understanding of the course material. This indicates that as students become more academically mature, they increasingly recognize the importance of timely and constructive feedback in their learning process. Additionally, the emphasis on designing engaging content that promotes self-reflection and self-assessment (M = 3.5, SD = 0.66) further supports the idea that senior students appreciate opportunities for deeper learning and personal growth through blended methods.

The implications of these findings are significant. First, the data suggests that students' academic maturity plays a crucial role in their perceptions of blended learning effectiveness. As students advance in their studies, they become more adept at managing the self-directed and collaborative elements of blended learning, which enhances their satisfaction. This aligns with research by Vaughan (2007), who emphasized that senior students are typically more proficient in self-regulation and managing the demands of blended environments. Additionally, the positive ratings from fourth-year students regarding instructor performance in online and face-to-face settings suggest that experienced students are better equipped to take advantage of the flexibility and interactivity offered by blended learning. This corroborates findings from Owston et al. (2019), who noted that senior students are often better positioned to navigate the challenges of blended learning.

Lastly, the study highlights the importance of continuous professional development for instructors in mastering the blended approach. Since fourth-year students expressed higher satisfaction with instructors' ability to fluidly switch between teaching methods and integrate engaging content, this underscores the need for teachers to continually enhance their technological and pedagogical skills to meet the evolving needs of students. As Cleveland-Innes and Wilton (2018) point out, the efficacy of blended learning largely depends on the instructor's capacity to scaffold and design meaningful learning experiences. Therefore, institutions should invest in training and support for educators to ensure they can effectively deliver blended learning across all year levels.

Table 2

Level of Effectiveness of Blended Learning in terms of Instructor Competency and Effectiveness

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
The teacher displayed an extraordinary ability to fluidly change teaching methods between in-person and online sessions.	3.22	0.59	E	3.31	0.59	E	3.59	0.63	VE
The instructor's skill in combining multimedia, interactive resources, and online collaboration tools enhanced the learning experience, making the course content accessible and engaging for all learners.	3.17	0.65	E	3.31	0.65	E	3.62	0.63	VE
Both online and in-person, the instructor effectively facilitated active involvement and conversations.	3.21	0.58	E	3.31	0.65	E	3.5	0.66	VE
Students valued the instructor's prompt feedback and tailored advice which considerably aided students' development and knowledge of the course material.	3.27	0.48	E	3.3	0.62	E	3.56	0.61	VE
Instructors design engaging online content that encourages self-reflection learning by incorporating opportunities for goal setting, self-assessment, and reflection into the curriculum.	3.24	0.57	E	3.36	0.61	E	3.5	0.66	VE
Blended learning detects the administrators' educational requirements as well as their current competencies in leadership.	3.23	0.57	E	3.32	0.61	E	3.5	0.66	VE
Blended learning employed by teachers to promote meaningful and authentic learning.	3.2	0.59	E	3.32	0.63	E	3.45	0.73	VE
Blended learning is vital in determining the capabilities of blended educators as bases for proficiency enhancement.	3.23	0.5	E	3.36	0.59	E	3.59	0.61	E
Blended learning necessitates numerous changes and practices through technology application and face-to- face interaction.	3.24	0.52	E	3.34	0.64	E	3.56	0.68	VE
Keep information engaging and relevant across all platforms and promote a dynamic and participatory learning experience for all students.	3.24	0.58	E	3.34	0.64	E	3.53	0.71	VE
Overall Mean	3.23	0.48	E	3.33	0.53	E	3.54	0.59	VE

Technology Proficiency. The data in Table 3 illustrates students' perceptions of technological proficiency and the use of digital tools in blended learning across second-year, third-year, and fourth-year levels. The overall mean scores reveal a progressive increase in satisfaction, with second-year students rating the experience as Effective (M = 3.22, SD = 0.45), third-year students similarly viewing it as Effective (M = 3.31, SD = 0.53), and fourth-year students rating it as Very Effective (M = 3.53, SD = 0.51). This upward trend indicates that as students advance academically, they become more accustomed to blended learning environments and perceive them as more effective in terms of technological integration and learning facilitation.

Specifically, fourth-year students rated several aspects as Very Effective (VE), such as the instructor's technological proficiency (M = 3.52, SD = 0.66) and the integration of interactive multimedia to cater to different learning styles (M = 3.52, SD = 0.64). These ratings suggest that senior students, having had more exposure to blended learning, have developed higher expectations for and satisfaction with the seamless use of digital tools. Additionally, the high mean score for the teacher's technical assistance (M = 3.56, SD = 0.56) highlights the importance of instructors' ability to support students in overcoming technological barriers, ensuring that learning is not disrupted by technical difficulties. Moreover, the increased satisfaction among fourth-year students concerning the use of mobile technologies and social media (M = 3.56, SD = 0.56) suggests that more experienced students see these tools as valuable enablers of learning, particularly in promoting communication and collaboration both inside and outside the classroom. This is consistent with their higher appreciation of technology facilitating online discussions and real-time interactions (M = 3.52, SD = 0.61).

The implications of these findings are clear: as students become more familiar with blended learning, their expectations and experiences improve, resulting in higher satisfaction, particularly in terms of technological integration. This aligns with the research of Vaughan (2007) and Owston et al. (2019), who argue that senior students are often more capable of managing the complexities of blended learning, which requires both self-directed learning and proficiency with digital tools. Additionally, the growing reliance on mobile technologies and social media reflects the evolving nature of education, where these platforms are not just supplementary but integral to the learning process.

For educators, these results highlight the need to continuously improve their technological proficiency and provide robust technical support to ensure that students can fully engage with blended learning environments. Institutions should also focus on offering training for both students and faculty on effective use of digital tools, as well as integrating more interactive and multimedia content to meet the diverse needs of learners. These strategies will help ensure that blended learning remains effective and continues to meet students' evolving expectations.

Table 3
Level of Effectiveness of Blended Learning in terms of Technology Proficiency

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
The instructor demonstrated exceptional technological proficiency by seamlessly integrating various digital tools and platforms, resulting in a user-friendlyand unified learning experience.	3.19	0.64	E	3.36	0.59	E	3.52	0.66	VE
Students appreciated the course's use of interactive multimedia, showcasing the instructor's skill in creating engaging content that caters to different learning styles.	3.24	0.57	E	3.32	0.64	E	3.52	0.64	VE
The instructor demonstrated proficiency in technology by effectively facilitating online communication, collaboration, and community among students through discussion forums, video conferences, and real-time chat sessions.	3.22	0.51	E	3.28	0.61	E	3.52	0.61	VE
Students appreciated the teacher's technical assistance, enabling effective use of learning platforms and digital tools, overcoming technological hurdles, and allowing focus on course material and objectives.	3.25	0.53	E	3.32	0.61	E	3.56	0.56	VE
Students were able to use technology in their own unique way.	3.27	0.5	E	3.31	0.58	E	3.55	0.59	VE
The student's success is dependent on the ability to cope with technical difficulty as well as technical skills in computer operations and internet navigation.	3.18	0.52	E	3.3	0.62	E	3.48	0.66	VE
The flipped classroom approach in blended learning is highly effective for students as it allows them to prepare online learning activities.	3.15	0.56	E	3.31	0.66	E	3.59	0.53	E
With The increasing presence of technology, and social behavioral science (psychology, psychobiology, anthropology, sociology, economics, and cognitive science), students learn to communicate in and out of class.	3.31	0.52	E	3.3	0.6	E	3.56	0.64	VE
The rapid use of mobile technologies and social media was considered an enabler of blended learning.	3.22	0.59	E	3.32	0.58	E	3.56	0.56	VE
Students are equipped with knowledge on how to make use of the necessary gadgets for blended learning.	3.22	0.52	E	3.31	0.65	E	3.5	0.66	VE
Overall Mean	3.22	0.45	E	3.31	0.53	E	3.53	0.51	VE

Access to Learning Resources. The data in table 4 reveals a clear progression in students' perceptions of the

effectiveness of blended learning platforms across second-year, third-year, and fourth-year students. The overall mean scores increase from second-year (M = 3.23, SD = 0.46) and third-year (M = 3.31, SD = 0.52), both rated as "Effective" (E), to fourth-year students rating the platform as "Very Effective" (VE) (M= 3.56, SD = 0.56). This trend suggests that as students' progress through their academic journey, they develop a stronger appreciation for the blended learning tools, becoming more proficient and comfortable in using them to enhance their learning experience.

For fourth-year students, several indicators were rated as Very Effective, such as access to diverse learning tools (M = 3.58, SD = 0.58), 24/7 study resources (M = 3.59, SD = 0.55), and the ability to adapt learning to individual styles (M = 3.53, SD = 0.71). These ratings imply that senior students, who may have more complex learning needs, highly value the flexibility and personalized learning experience that blended platforms offer. Additionally, they recognize the role of practical examples and case studies (M = 3.59, SD= 0.58) in deepening their understanding of course material, bridging the gap between theory and practice. Interestingly, the fourth-year cohort rated indicators related to resource accessibility, timely updates, and intuitive interfaces as Very Effective (e.g., "students can complete assigned tasks with available resources" M = 3.61, SD = 0.55), highlighting the importance of ease of navigation and immediate access to resources as they prepare for more demanding academic tasks.

The implications of these findings suggest that as students advance in their studies, they increasingly rely on blended learning platforms to meet their diverse and evolving educational needs. This progression underscores the need for institutions to ensure that these platforms remain adaptive, user-friendly, and equipped with comprehensive resources that cater to different learning styles. For educators, this emphasizes the importance of curating diverse materials and updating resources regularly, as timely notifications and easy access play a significant role in student engagement and academic success. The integration of real-life case studies and practical examples further enhances student learning outcomes, especially for senior students preparing for real-world applications of their knowledge. These findings also suggest that blended learning platforms can be powerful tools for promoting personalized education, fostering sustainable learning practices, and equipping students with the necessary skills to navigate complex academic and real-life challenges.

Table 4

Level of Effectiveness of Blended Learning in terms of Access to Learning Resources

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
The blended learning platform offered students a diverse range of learning tools, including e-books, articles, videos, and interactive modules, enhancing their learning experience through convenient access from anywhere.	3.28	0.51	E	3.42	0.53	E	3.58	0.58	VE
Study resources are available 24/7, enabling students to study at their own pace and meet their needs, thereby enhancing their overall learning experience.	3.16	0.63	E	3.25	0.66	E	3.59	0.55	VE
The platform caters to diverse learning styles and preferences, enabling students to choose materials that suit their individual needs, resulting in a personalized and adaptive learning experience.	3.21	0.58	E	3.31	0.62	E	3.53	0.71	VE
The combined learning resources significantly enhanced students' understanding and engagement with the subject matter by providing practical examples and case studies that connected theoretical knowledge to real-life situations.	3.23	0.52	E	3.35	0.51	E	3.59	0.58	VE
Students dedicate their time to connecting and locating relevant resources to complete their assigned tasks.	3.23	0.5	E	3.25	0.63	E	3.61	0.55	VE

The website is available for students to access through open-access links.	3.22	0.62	E	3.32	0.57	E	3.52	0.66	VE
Blended learning platforms promote sustainable living, building on an e- hub with sub-portals in "search" to facilitate activities such as "Education for Sustainable Development" (ESD), webinars, authentic learning, and the role of m-e-learning.	3.22	0.57	E	3.36	0.55	E	3.55	0.61	VE
The accessibility of resources provided to students allows them to review, reinforce, and explore concepts at their own pace.	3.21	0.58	E	3.31	0.62	E	3.52	0.71	VE
Students value timely notifications and updates on new materials, ensuring they stay informed and have access to the latest information for their studies.	3.27	0.55	E	3.32	0.64	E	3.55	0.68	VE
Students involve intuitive interfaces, simple navigation, and clear categorization of learning materials that make it easy for them to find and engage with the resources they require.	3.23	0.6	E	3.25	0.61	E	3.58	0.63	VE
Overall Mean	3.23	0.46	E	3.31	0.52	E	3.56	0.56	VE

Satisfaction. The data reveals a clear progression in student satisfaction with blended learning as they move from their second to fourth year (Table 5). Across various indicators, second- and third-year students rated the blended learning method as "Effective" (E), with overall means of 3.24 (SD = 0.47) and 3.29 (SD = 0.56), respectively. However, by their fourth year, students found the method "Very Effective" (VE), with a higher overall mean of 3.56 (SD = 0.60). This increase in satisfaction suggests that as students become more familiar with both online and in-person learning environments, they increasingly benefit from the flexibility, resources, and autonomy that blended learning offers.

For example, the flexibility provided by blended learning, which allows students to balance their academic responsibilities with other commitments, was rated significantly higher by fourth-year students (M= 3.61, SD = 0.58) compared to second- and third-year students (M = 3.27, SD = 0.52; M = 3.25, SD = 0.70). This trend is consistent with studies by Bernard et al. (2014), which found that senior students are more adept at managing self-directed learning and handling the flexible nature of blended learning. Similarly, the importance of timely feedback and strong teacher-student relationships was rated much higher by fourth-year students (M = 3.56, SD = 0.64) compared to younger students, indicating that the ability to engage in meaningful interactions with professors becomes more appreciated as students' progress in their studies.

The availability of abundant learning resources such as online libraries, interactive modules, and multimedia content also received higher ratings from senior students (M = 3.58, SD = 0.61), further highlighting the critical role these resources play in supporting advanced learning. This aligns with the findings of Lim and Morris (2009), who found that access to diverse learning materials significantly improves students' comprehension and satisfaction in blended learning environments. However, younger students (second and third year) rated many of these factors slightly lower, which could indicate initial struggles with the blended learning format. Research by Wong et al. (2020) supports this observation, as they found that less experienced students often struggle with time management and adjusting to the independence required for successful blended learning. This suggests that institutions should offer additional support for younger students, such as orientation on self-regulation and time management strategies for navigating blended learning environments.

The implications of these findings are clear: educators and institutions must continue to enhance the features of blended learning to support students at different stages of their academic journey. For younger students, more structured support and guidance may be necessary, while for senior students, maintaining flexibility, providing diverse resources, and ensuring strong communication channels with instructors will be key to sustaining engagement and academic success.

Table 5

Level of Effectiveness of Blended Learning in terms of Satisfaction

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
The blended learning method, combining online and in-person experiences, was engaging and motivating for students through engaging sessions and multimedia content.	3.26	0.56	E	3.29	0.68	E	3.59	0.61	VE
Learners appreciated the flexibility of blended learning, which allowed them to access course materials online and attend in-person sessions, enabling them to balance their studies with other commitments.	3.27	0.52	E	3.25	0.70	E	3.61	0.58	VE
Students appreciated the professors' quick response to questions and friendly nature, which enhanced the overall learning experience.	3.22	0.56	E	3.29	0.63	E	3.56	0.64	VE
The abundance of resources like online libraries, interactive modules, and multimedia content significantly enhanced students' learning and subject comprehension.	3.25	0.56	E	3.33	0.60	E	3.58	0.61	VE
Students are pleased with the relationship between distance learning and student progress, autonomy, and pleasure in the field of distance learning.	3.25	0.54	E	3.32	0.67	E	3.58	0.63	VE
Positive comments often focus on the flexibility offered by blended learning, allowing students to access materials at their own pace and convenience.	3.29	0.51	E	3.26	0.65	E	3.55	0.66	VE
Students appreciate the ability to monitor their progress, receive constructive feedback, and make necessary adjustments to enhance their understanding of the course material.	3.22	0.57	E	3.32	0.55	E	3.53	0.71	VE
Positive feedback expresses gratitude for the progress of tracking tools and fast feedback.	3.19	0.57	E	3.29	0.67	E	3.50	0.73	VE
Positive feedback often highlights the variety of multimedia, collaborative tools, and interactive content that enhance the overall learning process	3.27	0.50	E	3.28	0.65	E	3.55	0.68	VE
In blended learning, there is a high level of satisfaction between a student-to- student relationship and a teacher- to-student relationship.	3.22	0.56	E	3.30	0.64	E	3.59	0.68	VE
Overall Mean	3.24	0.47	E	3.29	0.56	E	3.56	0.60	VE

Summary on the Level of Effectiveness of Blended Learning. Data in Table 6 demonstrate a progressive increase in students' ratings across all parameters as they advance from their second to fourth year. The overall mean for second-year students was 3.23, interpreted as "Effective" (E), while third-year students rated these parameters slightly higher at 3.31 (E). By their fourth year, students rated all parameters as "Very Effective" (VE), with an overall mean of 3.56. This suggests that senior students perceive their personal growth, instructor competency, technology proficiency, access to resources, and overall satisfaction with the learning experience more positively as they mature in their academic journey. Fourth-year students rated their personal growth significantly higher (M = 3.6, VE) than second- year (M = 3.24, E) and third-year students (M = 3.3, E). This trend could be attributed to the increasing responsibilities and independence that come with advanced studies, which allow students to develop more holistically. Studies like Zimmerman (2002) corroborate this finding, emphasizing that self-regulated learning and personal growth tend to improve as students become more experienced in managing their academic workload.

Similarly, perceptions of instructor competency increased from second-year (M = 3.23, E) to fourth- year (M = 3.54, VE) students. This could be a reflection of students' growing ability to engage more critically with course content and instructional methods. According to studies by Kember and Gow (2009), students often develop a

deeper appreciation for effective teaching as they advance in their academic careers, particularly as courses become more specialized and aligned with their career goals. The ability to navigate technology and access learning resources also received higher ratings from fourth-year students (M = 3.53 and M = 3.56, VE), indicating greater familiarity and comfort with digital tools and resources. As students gain more experience with technology over time, they become better equipped to use these resources effectively. Research by Garrison and Vaughan (2008) supports this, highlighting that students in upper-level courses often demonstrate greater digital literacy and confidence in using technological platforms to support their learning. Finally, satisfaction with the learning experience also increased as students progressed through their studies, with fourth-year students reporting significantly higher levels of satisfaction (M = 3.56, VE) than their second- (M = 3.24, E) and third year (M = 3.29, E) counterparts. This aligns with findings from Dziuban et al. (2006), who noted that students become more satisfied with blended and technology-supported learning environments as they develop the skills to balance academic demands with personal responsibilities.

Table 6
Summary of the Level of Effectiveness of Blended Learning

Parameters	2nd Year (n=116)		3rd Year (n=118)		4th Year (n = 66)	
	M	VI	M	VI	M	VI
Personal Growth	3.24	E	3.3	E	3.6	VE
Instructor Competency and Effectiveness	3.23	E	3.33	E	3.54	VE
Technology Proficiency	3.22	E	3.31	E	3.53	VE
Access to Learning Resources	3.23	E	3.31	E	3.56	VE
Satisfaction	3.24	E	3.29	E	3.56	VE
Overall Mean	**3.23**	**E**	**3.31**	**E**	**3.56**	**VE**

The increasing ratings across these parameters indicate that educational institutions must continuously adapt their support for students at different stages of their academic journey. For younger students, there may be a need for additional guidance in technology use, personal growth, and engagement with instructors, while senior students benefit from more autonomy, access to advanced resources, and a deeper connection with their instructors. Tailoring resources and support based on the student's academic level can enhance learning outcomes and overall satisfaction with the educational experience. These results suggest that as students become more comfortable with technology and self-directed learning, they not only perform better but also feel more positive about their growth and the support they receive. Institutions should therefore focus on strengthening digital infrastructure, providing diverse and flexible learning resources, and ensuring instructor competency to maintain high levels of student satisfaction throughout their academic journey.

Personal Growth. The data indicates that students across all year levels consistently rated their challenges in a blended learning environment as "Moderately Satisfactory" (MS), with some noticeable trends over time. The second-year students recorded an overall mean of 2.44, while third-year students slightly decreased to 2.27, and by the fourth year, students gave an even lower rating of 1.86. These declining ratings suggest that students' struggles with blended learning decrease as they progress through their academic years.

Second-year students struggled more with balancing online and face-to-face modalities (M = 2.34, SD = 0.88), and this challenge becomes less pronounced in the fourth year (M = 1.83, SD = 0.99). The ability to manage time and remain motivated also showed a similar trend, with second-year students reporting higher difficulty (M = 2.47, SD = 0.91), which diminished as students advanced to the fourth year (M = 1.94, SD = 1.07). These findings align with studies suggesting that experience with blended learning over time helps students develop better self-regulation and time management skills (Broadbent & Poon, 2015).

Social isolation and the decrease in face-to-face interactions were rated as a significant concern for second-year students (M = 2.44, SD = 0.88). By the fourth year, this concern reduced (M = 1.82, SD = 1.01), indicating that students might become more comfortable with limited physical interaction as they mature in their studies. This pattern is consistent with the findings of Hrastinski (2019), which suggest that as students gain experience with online learning, they develop alternative strategies for building relationships and seeking social support in

virtual environments.

Table 7

Extent of the Challenges Encountered During Blended Learning in terms of Personal Growth

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
Balancing the requirements of self- paced online learning with in- person sessions.	2.34	0.88	MS	2.17	0.95	MS	1.83	0.99	MS
Struggling with self-motivation to remain focused and effectively manage my time between online and face-to-face modalities.	2.47	0.91	MS	2.22	0.94	MS	1.94	1.07	MS
Students may struggle to accommodate to different teaching methods, approaches, and expectations across these many modalities.	2.44	0.84	MS	2.28	0.96	MS	1.86	1.04	MS
Blended learning, despite its advantages, may lead to a decrease in face-to-face social interactions, potentially causing personal isolation and hindering personal growth and holistic development.	2.44	0.88	MS	2.24	0.95	MS	1.82	1.01	MS
Inadequate social interaction and motivation	2.44	0.93	MS	2.20	0.94	MS	1.83	1.05	MS
Blended learning may enable you to avoid rote learning.	2.36	0.86	MS	2.18	0.93	MS	1.83	1.02	MS
As students must balance their schedules while remaining motivated to finish online modules or activities, blended learning frequently necessitates a high level of self-discipline and time management.	2.54	0.90	S	2.32	1.01	MS	1.83	1.00	MS
Most of the respondents need to seek social support to cope with blended learning.	2.47	0.84	MS	2.35	1.02	MS	1.86	0.97	MS
In blended learning students may experience ascertain issues, concerns, and problems in a blended learning environment, elicit and explore students' coping mechanisms and learning strategies.	2.45	0.90	MS	2.35	1.01	MS	1.89	1.04	MS
Due to a lack of interaction and the learners' ability to cope, the student and teacher qualities can become limited.	2.47	0.91	MS	2.40	1.00	MS	1.85	1.00	MS
Overall Mean	2.44	0.80	MS	2.27	0.87	MS	1.86	0.94	MS

Self-discipline, particularly in completing online modules, was one of the few parameters rated as "Satisfactory" (S) by second-year students (M = 2.54, SD = 0.90) but became "Moderately Satisfactory" by the fourth year (M = 1.83, SD = 1.00). The need for social support in coping with blended learning was also noted, with second-year students rating it at M = 2.47, SD = 0.84, compared to M = 1.86, SD = 0.97 in the fourth year. This suggests that as students advance, they require less external support, likely due to their increased familiarity with independent learning strategies (Kuo et al., 2014). These results highlight the importance of providing additional support for younger students who are new to blended learning environments. Early in their academic careers, students might struggle with time management, motivation, and the lack of social interaction. Educators and institutions can offer targeted interventions, such as time management workshops, peer mentoring, and fostering virtual communities, to help ease the transition into blended learning.

As students advance, they appear to become more adept at managing the complexities of blended learning, indicating a reduced need for intervention in later years. However, the diminishing need for social interaction also suggests that institutions should explore ways to maintain student engagement and prevent isolation, particularly in the early stages of academic programs. These findings support the idea that with proper guidance and resources, students can overcome initial difficulties in blended learning and develop into self-directed learners capable of thriving in hybrid learning environments. Studies by Garrison and Kanuka (2004) emphasize the critical role of social presence and cognitive development in blended learning, further reinforcing the need for institutions to provide ongoing support across various year levels.

Instructor Competency and Effectiveness. The analysis of student ratings regarding the challenges instructors face in blended learning reveals a consistent pattern across 2nd-year, 3rd-year, and 4th-year students. The 2nd-year students rated these challenges the highest, with most indicators interpreted as **Satisfactory** (S), such as the integration of new technologies into classrooms (M = 2.55, SD = 0.87) and the need for instructors to restructure learning processes (M = 2.60, SD = 0.91). This suggests that younger students perceive these challenges as more significant, likely due to their limited experience with blended learning environments. In contrast, 3rd-year and 4th-year students rated these challenges lower, with most indicators falling into the Moderately Satisfactory (MS) range, indicating that as students' progress, they may become more accustomed to the blended learning format, perceiving these challenges as less impactful.

For example, the difficulty in balancing online and in-person approaches saw a gradual decrease in ratings from the 2nd year (M = 2.55, SD = 0.90) to the 4th year (M = 1.97, SD = 1.04). Similarly, the perceived inability of instructors to comprehensively assess students' skills also saw a decrease from 2nd-year (M = 2.59, SD = 0.92) to 4th-year students (M = 2.00, SD = 1.08). The ratings for technical issues like poor internet connectivity and platform glitches also decreased across year levels, from 2nd-year (M = 2.62, SD = 0.84) to 4th-year students (M = 2.03, SD = 1.10), suggesting that students might either be more tolerant of these issues or have developed coping mechanisms over time. These results indicate that 2nd-year students may need more support and guidance in adapting to blended learning environments, as they perceive technological and instructional challenges as more pronounced. Instructors and institutions should focus on providing additional resources and training, particularly for early-year students, to ease their transition into blended learning. Furthermore, technical support and faculty development programs should be prioritized to address the challenges of integrating digital tools, balancing teaching methods, and managing technical issues.

From an instructional standpoint, it is crucial for educators to focus on strategies that maintain student engagement and coherence between online and in-person content, as these were consistently rated as moderate challenges across all year levels. Additionally, as noted in studies by Garrison and Vaughan (2008) and Graham (2013), the success of blended learning hinges on adequate institutional support, both in terms of technology and instructional design. Such support can help alleviate the pressures on instructors to balance different teaching modalities and ensure a smooth, integrated learning experience for students.

Table 8

Extent of challenges encountered during blended learning in terms of instructor competency and effectiveness

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
Teachers may face challenges in integrating new technologies and digital tools into their classrooms, affecting learning management systems, multimedia integration, and ensuring a pleasant technological experience for students.	2.55	0.87	S	2.35	1.00	MS	1.89	1.02	MS
Instructors are forced to restructure the learning process and adjust their classroom material to accommodate such change, or else lectures will appear tedious to most students.	2.60	0.91	S	2.33	1.00	MS	1.89	1.02	MS
Instructors may find it difficult to establish a balance between these two approaches while ensuring content coherence and engagement across both platforms. It might be challenging to coordinate online and in-person educational approaches.	2.55	0.90	S	2.33	0.99	MS	1.97	1.04	MS
Inability of the Instructor to comprehensively assess the skills of the students.	2.59	0.92	S	2.33	0.96	MS	2.00	1.08	MS

Parents' perceptions of the blended learning modality and teachers' proficiency during online sessions may not be met.	2.54	0.90	S	2.31	0.97	MS	2.05	1.07	MS
Blended learning may enable you to avoid rote learning.	2.57	0.90	S	2.32	1.00	MS	2.06	1.11	MS
Instructor characteristics may be difficult to discern during an online session.	2.53	0.89	S	2.33	0.98	MS	2.00	1.08	MS
Instructors must navigate the challenge of adapting their teaching methods to accommodate different learning styles, ensuring that the material is accessible and engaging for all students.	2.57	0.90	S	2.32	1.00	MS	2.06	1.11	MS
Instructors often face challenges related to technical issues such as poor internet connectivity, platform glitches, or hardware malfunctions.	2.62	0.84	S	2.35	1.03	MS	2.03	1.10	MS
Due to a lack of technical abilities required for blended learning, the instructor may become ineffective.	2.59	0.90	S	2.37	1.03	MS	1.97	1.05	MS
Overall Mean	2.57	0.81	S	2.33	0.91	MS	1.99	1.02	MS

Technology Proficiency. The data reflects the challenges faced by 2nd, 3rd, and 4th-year students in online and blended learning environments. Each indicator provides insights into key areas where difficulties are more or less pronounced depending on the students' academic year. Most indicators fall under the "Serious" (S) category, with mean scores between 2.50 and 2.67. This suggests that 2nd-year students experience significant difficulties in areas such as internet access, use of instructional tools, lack of gadgets, and participation in online discussions. These students are most affected by inadequate infrastructure and training gaps. The majority of indicators fall under the "Moderately Serious" (MS) category, with mean scores ranging from 2.39 to 2.50. While challenges persist, they are less severe compared to those faced by 2nd- year students. This could imply that 3rd-year students are becoming more familiar with the online learning environment and its tools but still face technical issues and a need for additional training. The indicators for 4th-year students are consistently in the "Moderately Serious" (MS) range, with mean scores between 1.95 and 2.06. The lower scores reflect that 4th-year students have developed more effective strategies to navigate the challenges of online learning, likely due to accumulated experience and better adaptability to technological demands.

The results highlight a significant learning curve that students face as they progress through their academic years, with the severity of challenges lessening in later years. Institutions must focus on providing targeted interventions, particularly for 2nd-year students who struggle the most. This could include improving access to internet and technological resources, offering comprehensive digital literacy training, and ensuring smooth integration of multiple digital tools. For 3rd and 4th-year students, ongoing support to enhance their technical proficiency and ensure reliable access to learning resources is essential. Addressing these challenges can improve students' engagement and performance in blended learning environments. This is supported by several studies which emphasize the detrimental impact of poor internet access and technological issues on students' online learning experiences. A study by Tichavsky et al. (2015) showed that inadequate internet and technical problems are significant barriers to effective learning in virtual classrooms, leading to frustration and reduced engagement. Also, Research by Zhang et al. (2020) underscores the importance of digital literacy for both instructors and students. Their study found that a lack of adequate training in digital tools leads to inefficiencies in online teaching and learning, supporting the findings that both groups require additional training to effectively navigate online platforms.

Access to Learning Resources. The data from 2nd, 3rd, and 4th-year students (n = 116, 118, and 66, respectively) indicate that while students across all academic years face significant challenges in online and blended learning environments, these challenges tend to diminish as students' progress through their studies. Key observations reveal that technological access and resources remain critical challenges, particularly for 2nd-year students, with

a mean rating of 2.58 to 2.60. While this issue slightly improves for 3rd-year students (mean = 2.46) and further decreases for 4th-year students (mean = 1.95), it still remains a significant concern. This suggests that senior students may have adapted better or acquired more resources, although the digital divide persists. Similarly, difficulty navigating multiple online platforms is most prominent among 2nd-year students (mean = 2.68) and remains a challenge for 3rd-year students (mean = 2.45), before easing somewhat for 4th-year students (mean = 2.02). This trend points to increased familiarity with online tools among senior students.

Table 9
Extent of the Challenges Encountered During Blended Learning in terms of Technology Proficiency

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
Inadequate internet access, software malfunctions, or compatibility issues between multiple tools and platforms may impede the smooth transmission of course information, causing harm to both instructors and students.	2.57	0.86	S	2.42	0.96	MS	1.95	1.07	MS
Instructors and students may need additional training to effectively use various instructional devices, which can lead to a learning curve that impacts teaching and learning processes.	2.61	0.86	S	2.39	1.00	MS	1.98	1.07	MS
Online learning can be challenging due to difficulties in using interactive tools and students struggling with active participation in digital discussions or activities.	2.59	0.87	S	2.49	1.04	MS	2.00	1.04	MS
The online learning environment may face challenges in protecting personal and sensitive information, potentially affecting trust and confidence among instructors and students.	2.59	0.88	S	2.43	0.97	MS	2.02	1.06	MS
Not all of the students have gadgets and internet connections.	2.67	0.91	S	2.50	1.00	S	2.03	1.08	MS
The challenge lies in the absence of necessary facilities and technologies for blended learning.	2.55	0.87	S	2.44	0.97	MS	2.00	1.07	MS
Lack of physical examination maneuvers during online sessions.	2.50	0.89	S	2.49	0.98	MS	2.03	1.11	MS
Some students are having difficulties in regularly going online.	2.64	0.88	S	2.46	1.00	MS	2.06	1.12	MS
Blended learning faces challenges like incorporating digital technology, requiring skills and knowledge, and improving students' reading comprehension abilities.	2.60	0.85	S	2.47	1.02	MS	1.98	1.09	MS
Participants are most challenged through carrying out a lesson and a lack of resources.	2.63	0.91	S	2.49	1.04	MS	1.98	1.05	MS
Overall Mean	2.59	0.80	S	2.46	0.93	MS	2.00	1.04	MS

Access to learning materials, such as digital libraries or licensed content, also presents challenges across all years, with 4th-year students showing slightly more ease (mean = 1.98), likely due to greater experience in navigating such barriers. Technological literacy issues follow a similar pattern, where younger students face greater difficulty adapting to digital tools, though this gradually improves as they advance in their academic journey. Additionally, adjusting to blended learning environments is a significant challenge, especially for 2nd-year students (mean = 2.61), but decreases for 3rd-year (mean = 2.42) and 4th-year students (mean = 2.03).

These findings have several implications. Over time, students seem to develop coping mechanisms and gain better access to resources, but disparities, particularly among younger students, persist. The digital divide continues to pose barriers to educational equity, and institutions must prioritize closing these gaps by offering stronger technological support. Moreover, the consistent struggle to navigate multiple online platforms and access quality materials highlights the need for targeted pedagogical training in digital literacy. Educational institutions should also ensure equitable resource distribution so that all students have reliable access to necessary technologies. Supporting studies corroborate these findings. For instance, research by Pokhrel and Chhetri (2021) on the impact of COVID-19 on online education found that students from lower socioeconomic backgrounds struggled with

technological access, echoing the current study's findings of technological challenges, especially among lower-year students. Selwyn's (2020) study on digital literacy also supports the conclusion that students' ability to effectively use digital tools varies significantly, with younger students facing greater difficulties. Furthermore, Hrastinski's (2019) work on blended learning challenges aligns with this study's observation that students, particularly in lower years, struggle with resource gaps and technological fluency.

Table 10

Extent of Challenges Encountered During Blended Learning in terms of Access to Learning Resources

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
Due to limitations in access to critical technology, such as devices or a consistent internet connection, some students may struggle to access online content, resulting in an unequal learning experience.	2.58	0.92	S	2.46	1.05	MS	1.95	1.07	MS
Some students may have trouble obtaining specific learning materials due to availability restrictions, such as limited access to digital libraries, e-books, or licensed content required for the course.	2.58	0.89	S	2.41	1.01	MS	1.98	1.09	MS
A wide selection of online learning instruments may present difficulties for students in organizing and navigating the materials. Difficulties in locating certain materials or knowing how to successfully access and use those resources could hinder the learning process.	2.58	0.88	S	2.43	0.99	MS	1.94	1.04	MS
Students might find it difficult when assessing the quality and reliability of internet information. Sorting through a sea of online materials to discover what is authentic and dependable for academic purposes can be difficult.	2.53	0.89	S	2.40	0.99	MS	2.06	1.09	MS
Due to the sudden changes, they resorted to adjustments, but conflicts such as not having enough resources necessary for blended learning requirements still emerge.	2.61	0.92	S	2.42	1.03	MS	2.03	1.11	MS
Uneven access to reliable internet connections and technology devices among students can create disparities in their ability to access online learning resources.	2.60	0.89	S	2.41	1.00	MS	2.00	1.10	MS
Students may find it challenging to navigate and manage multiple platforms, leading to confusion and potential difficulty accessing essential learning resources.	2.68	0.86	S	2.45	1.01	MS	2.02	1.12	MS
This challenge can hinder students' ability to access the necessary resources, impacting the effectiveness of their learning experience.	2.64	0.87	S	2.44	1.01	MS	2.03	1.14	MS
Students with varying levels of technological literacy may encounter challenges in effectively using digital tools.	2.58	0.83	S	2.47	1.04	MS	2.02	1.14	MS
Technological obstacles can make learning resources inaccessible to students who are unfamiliar with or do not have frequent access to a particular technology.	2.58	0.86	S	2.42	1.03	MS	2.03	1.10	MS
Overall Mean	2.60	0.80	S	2.43	0.95	MS	2.01	1.05	MS

Satisfaction. The data shows that maintaining consistency between online and in-person learning is perceived as a significant challenge by 2nd-year students (mean = 2.57, SD = 0.92), but this challenge becomes less pronounced by the 4th year (mean = 2.05, SD = 1.12). This suggests that while students may initially struggle with inconsistencies in content delivery, they likely develop coping strategies or become more familiar with the blended format as they progress. The implication here is that educational institutions should prioritize consistent quality

across both modalities, especially for younger students who are still adjusting to this learning style.

Technical disruptions, such as platform malfunctions and poor internet connectivity, continue to be a major source of dissatisfaction, especially for 2nd and 3rd-year students (means = 2.60 and 2.47, respectively). These disruptions can impede learning and increase frustration, suggesting that schools should invest in better technical infrastructure and offer consistent tech support to reduce these barriers, particularly for younger students who are less equipped to deal with these challenges. Across all years, students report challenges with engagement and participation in both online and face-to-face sessions. The means of 2.55 for 2nd-year students and 2.02 for 4th-year students highlight a decline in perceived difficulty over time, but engagement remains a key issue. This indicates the need for strategies to enhance interaction, such as using more engaging tools, interactive content, and fostering better teacher-student dynamics, particularly for lower-year students.

Blended learning challenges, including lack of skills, limited social interaction, and poor internet connection, have affected the satisfaction levels of students and educators, particularly for 2nd-year students (mean = 2.58). Although the severity decreases by the 4th year, institutions should address these issues early on by offering more resources, skills training, and support systems to smooth the transition to blended learning environments. Students across all year levels express dissatisfaction when expectations regarding blended learning are not met. Although this issue is less severe among 4th-year students, with means dropping from 2.48 to 2.05, unmet expectations regarding course structure and engagement can still lead to dissatisfaction. Schools should emphasize clear communication about course delivery methods and set realistic expectations to mitigate this issue.

Research supports these findings. For instance, a study by Pokhrel and Chhetri (2021) highlights that students encounter significant issues with online learning due to technical problems, a finding consistent with the technical challenges identified in this study. Another study by Hrastinski (2019) also aligns with these results, as it emphasizes the difficulties students face in adjusting to blended learning, including technical issues and a lack of interaction, which are prevalent challenges across all academic levels in this dataset. In contrast, a study by Selwyn (2020) suggests that while technical issues are common, students in more developed educational environments may experience fewer issues over time due to better infrastructure and support systems, which may explain the decreasing means among senior students in the present study. This suggests that institutions that invest more in technology and training can reduce these challenges more effectively. These findings indicate that while students may adapt to online and blended learning environments over time, significant challenges remain, particularly for younger students. To enhance student satisfaction and engagement, institutions must focus on providing consistent learning experiences, improving technical infrastructure, and fostering better interaction in both online and face-to-face formats.

Table 11
Extent of the Challenges Encountered During Blended Learning in terms of Satisfaction

Indicators	2nd Year (n = 116)			3rd Year (n = 118)			4th Year (n = 66)		
	M	**SD**	**VI**	**M**	**SD**	**VI**	**M**	**SD**	**VI**
Maintaining consistency in online and in-person learning can be challenging, as students may perceive discrepancies in content quality across various media, potentially impacting their mental state.	2.57	0.92	S	2.49	1.00	MS	2.05	1.12	MS
Encouraging effective interaction and participation among students and teachers in online and face-to-face sessions can be challenging, potentially impacting satisfaction levels.	2.55	0.86	S	2.42	1.00	MS	2.02	1.10	MS
Technical issues, like platform malfunctions, internet connectivity issues, or device malfunctions, can disrupt the learning process and cause discontent among students and teachers.	2.60	0.88	S	2.47	1.02	MS	2.00	1.10	MS

Tailoring the educational process to individual needs and preferences can be challenging, as it may require adjusting resources and instructional methods to accommodate different learning styles.	2.56	0.92	S	2.50	1.04	S	2.00	1.10	MS
Blended learning faces challenges such as lack of skills, poor internet connection, limited social interaction, and lack of gadgets are the reasons that affect the satisfaction of students and educators.	2.58	0.91	S	2.47	1.06	MS	2.02	1.09	MS
Some students may feel a lack of interaction or engagement in one or both modalities, impacting their overall satisfaction with the course.	2.60	0.88	S	2.49	1.04	MS	1.98	1.12	MS
Students are uninterested in participating in online discussions, which reduces the effectiveness and fulfillment of blended learning.	2.59	0.83	S	2.42	1.05	MS	2.08	1.13	MS
Students may have varied expectations regarding the blended learning experience. If these expectations are not effectively communicated or aligned with the actual course structure, it can result in dissatisfaction among students.	2.48	0.92	MS	2.49	1.00	MS	2.05	1.12	MS
Achieving a balance between online and in-person engagement can be challenging. Some students may feel a lack of interaction or engagement in one or both modalities, impacting their overall satisfaction with the course.	2.55	0.88	S	2.52	1.03	S	2.05	1.12	MS
Inconsistencies in course delivery may impact the overall satisfaction of students who value a cohesive learning experience.	2.55	0.90	S	2.48	0.99	MS	2.02	1.10	MS
Overall Mean	2.56	0.81	S	2.48	0.98	MS	2.02	1.06	MS

Summary of the Challenges Encountered. The analysis and interpretation of the data reveal a trend of decreasing satisfaction and engagement as students' progress through their academic years. Across the three indicators—Personal Growth, Instructor Competency and Effectiveness, Technology Proficiency, and Access to Learning Resources—the mean scores decline from the second year to the fourth year. The second- year students generally perceive their experiences positively, with scores indicating "Satisfactory" (S) for most categories, while third-year and fourth-year students report a shift towards "Moderately Satisfactory" (MS). For instance, personal growth, which is essential for student development, shows a noticeable decline from 2.44 in the second year to 1.86 in the fourth year. Similarly, satisfaction in access to learning resources, vital for educational success, drops from 2.60 to 2.01 by the fourth year.

This declining trend has significant implications. The findings suggest that as students advance through their program, they may encounter challenges that negatively impact their perception of the learning environment. The decrease in ratings for instructor competency, technology proficiency, and access to learning resources may indicate that students become more critical or that institutional support becomes less effective as they approach the completion of their studies. This can lead to decreased motivation and overall dissatisfaction, potentially affecting academic performance and retention rates.

In linking these results to related studies, this trend of declining satisfaction over time is consistent with research by Tinto (1993) on student retention and the student experience. Tinto's model highlights the importance of continuous support and engagement throughout a student's academic journey, emphasizing that academic and social integration is crucial for student success. Moreover, studies such as those by Astin (1999) emphasize the role of institutional support systems and faculty involvement in sustaining student satisfaction and achievement.

Table 12
Summary of the Extent of the Challenges Encountered During Blended Learning

Indicators	2nd Year (n=116) M	VI	3rd Year (n=118) M	VI	4th Year (n = 66) M	VI
Personal Growth	2.44	MS	2.27	MS	1.86	MS
Instructor Competency and Effectiveness	2.57	S	2.33	MS	1.99	MS
Technology Proficiency	2.59	S	2.46	MS	2.00	MS
Access to Learning Resources	2.60	S	2.43	MS	2.01	MS
Satisfaction	2.56	S	2.48	MS	2.02	MS
Overall Mean	2.55	S	2.39	MS	1.98	MS

Level of Effectiveness of Blended Learning and the Extent of Challenges Encountered. The analysis of the significant relationship between the level of effectiveness of blended learning and the extent of challenges encountered reveals strong negative correlations across all variables. The negative values of the correlation coefficients (ranging from -0.486 to -0.922) indicate that as the challenges encountered by students increase, the perceived effectiveness of blended learning decreases significantly. For instance, satisfaction has the strongest negative correlation with challenges (r = -0.922), showing that students who face more difficulties in the blended learning environment are far less satisfied. Similarly, the strong negative correlations between challenges and personal growth (r = -0.486), instructor competency (r = -0.553), technology proficiency (r = -0.598), and access to learning resources (r = -0.556) imply that these critical components of blended learning are severely impacted when students face challenges.

Table 13
Significant relationship between level of effectiveness of blended learning and the extent of challenges encountered

Variables	r	p-value	Decision	Analysis
Personal Growth vs. Challenges	-.486**	0.000	Reject Ho	Significant
Instructor Competency and Effectiveness vs. Challenges	-.553**	0.000	Reject Ho	Significant
Technology Proficiency vs. Challenges	-.598**	0.000	Reject Ho	Significant
Access to Learning Resources vs. Challenges	-.556**	0.000	Reject Ho	Significant
Satisfaction vs. Challenges	-.922**	0.000	Reject Ho	Significant
Level of Effectiveness vs. Extent of Challenges	-.570**	0.000	Reject Ho	Significant

Note: **. Correlation is significant at the 0.01 level (2-tailed).

These findings have important implications for the design and implementation of blended learning programs. The significant inverse relationship suggests that blended learning is effective only when challenges, such as technological barriers, lack of access to resources, or inadequate instructor support, are minimized. As challenges intensify, students' growth, satisfaction, and engagement with blended learning decrease, potentially undermining academic performance and success. This aligns with the study by Garrison and Kanuka (2004), which highlighted that while blended learning offers flexibility, its effectiveness is contingent upon reducing the challenges that students face, particularly in terms of access to reliable technology and instructor interaction. Moreover, the results are consistent with Vygotsky's (1978) Social Constructivist Theory, which emphasizes the importance of interaction and support for effective learning. When students face challenges that disrupt access to these support mechanisms, the effectiveness of learning declines significantly.

In conclusion, the significant negative relationships suggest that addressing and mitigating challenges in blended learning environments is crucial to enhancing students' personal growth, technology proficiency, and overall satisfaction. Institutions must focus on minimizing these obstacles to ensure that blended learning can achieve its full potential in fostering educational success.

Differences in the Effectiveness of Blended Learning

The analysis of differences in the effectiveness of blended learning according to year level, as reflected by the ANOVA results, shows significant variations across all indicators: personal growth, instructor competency and

effectiveness, technology proficiency, access to learning resources, and overall satisfaction. Each of these indicators yields a p-value of less than 0.05, indicating that there are statistically significant differences between the year levels in terms of how they perceive the effectiveness of blended learning.

For personal growth, the F-value of 12.246 ($p = 0.000$) suggests that students across different year levels experience varied levels of growth within the blended learning environment. This may be due to differences in academic maturity, adaptability to technology, or exposure to the blended learning format. Instructor competency and effectiveness also shows significant variation ($F = 7.637$, $p = 0.001$), potentially indicating that upper-year students might have higher expectations from instructors compared to lower-year students, leading to differing perceptions of instructor effectiveness. Similarly, for technology proficiency ($F= 8.349$, $p = 0.000$) and access to learning resources ($F = 9.249$, $p = 0.000$), upper-year students may face greater technological challenges or feel more critical about the resources available, given their more advanced academic requirements. Finally, satisfaction ($F = 8.016$, $p = 0.000$) also shows significant differences, with varying levels of satisfaction across the year levels, suggesting that student expectations and experiences with blended learning shift as they progress through their academic journey.

These findings have important implications for the implementation of blended learning across different academic years. Since upper-year students seem to perceive lower effectiveness in many aspects, educational institutions may need to adjust the delivery of blended learning to address the specific needs of students at different stages. For example, upper-year students may require more advanced resources, greater technological support, and more sophisticated instructor engagement to match their higher academic demands. In linking this to related studies, the results are consistent with the work of Arbaugh and Duray (2002), who noted that student satisfaction and effectiveness in online and blended learning environments are influenced by students' year level and their prior exposure to such learning modes. The results also resonate with Keller's (1987) ARCS Model of Motivation, which suggests that as students advance through their academic years, their motivation and engagement are driven by different factors, including the relevance and support of the learning environment.

In conclusion, these findings underscore the importance of tailoring blended learning strategies to meet the evolving needs of students as they progress through their academic years. Institutions should consider differentiated approaches, offering more advanced and personalized support for upper-year students to enhance their learning experience and satisfaction.

Table 14
Differences in the Effectiveness of Blended Learning According to Year Level

		Sum of Squares	df	Mean Square	F	p-value
Personal Growth	Between Groups	5.892	2	2.946	12.246	0.000
	Within Groups	71.451	297	0.241		
	Total	77.343	299			
Instructor Competency and Effectiveness	Between Groups	4.191	2	2.095	7.637	0.001
	Within Groups	81.486	297	0.274		
	Total	85.676	299			
Technology Proficiency	Between Groups	4.106	2	2.053	8.349	0.000
	Within Groups	73.026	297	0.246		
	Total	77.131	299			
Access to learning Resources	Between Groups	4.75	2	2.375	9.249	0.000
	Within Groups	76.26	297	0.257		
	Total	81.01	299			
Satisfaction	Between Groups	4.597	2	2.298	8.016	0.000
	Within Groups	85.163	297	0.287		
	Total	89.76	299			

4. Conclusions

The conclusions drawn from the analysis of students' perceptions of blended learning reveal that overall satisfaction and adaptability improve as students advance through their academic levels. Fourth-year students

demonstrate a higher level of comfort and success in navigating blended learning, rating their experience as "Very Effective" compared to the "Effective" ratings of second- and third-year students. This progression reflects increased adaptability, technological proficiency, and an appreciation for well-integrated learning tools and instructional methods. Key factors such as instructor competency, access to digital resources, and personalized learning experiences are highly valued by students in their later academic years, further enhancing their overall satisfaction. However, challenges remain, particularly for younger students. Second-year students face more significant difficulties related to technological access, platform navigation, and time management, indicating the need for targeted interventions to bridge the gap for lower academic levels. Institutions must prioritize scaffolding support for younger students through digital literacy workshops, peer mentoring programs, and early-stage guidance in time management and platform usage. By progressively integrating digital tools and resources, students can build their technological confidence and proficiency over time.

These findings also highlight the importance of instructor training and development, ensuring faculty are equipped to deliver effective and engaging blended learning experiences. Personalizing learning experiences and leveraging adaptive technologies can further enhance student satisfaction and outcomes across all academic levels. Equitable access to digital resources and consistent feedback mechanisms are essential to fostering an inclusive and effective blended learning environment. Overall, while blended learning is a highly effective approach across academic levels, addressing the unique challenges faced by younger students through structured interventions and ongoing faculty development will significantly improve learning outcomes and overall satisfaction.

4.1 Recommendations

Based on the conclusions, several recommendations can be made to improve students' blended learning experiences. First, younger students, particularly those in their second and third years, face more challenges with technological access, platform navigation, and time management. To address these issues, universities should offer targeted support in the form of workshops on online platform usage, time management, and access to technology resources. Additionally, increasing access to technological tools is crucial. Institutions can expand campus Wi-Fi, provide lending devices, and offer discounts on software and hardware to ensure all students, particularly those with limited resources, can participate fully in blended learning. Moreover, since fourth-year students express higher satisfaction with their instructors' blended learning methods, implementing professional development programs for educators is essential. These programs should focus on enhancing the use of online teaching tools and multimedia resources while maintaining a balance between virtual and in-person instruction.

Furthermore, developing personalized learning and feedback mechanisms is vital, especially as students place greater importance on teacher-student interaction as they progress academically. Institutions should ensure timely feedback and tailored learning experiences to meet individual needs. Peer mentorship programs, where fourth-year students assist younger students in adapting to blended learning, can also ease the transition for those struggling with the format. Finally, universities should regularly monitor and assess the integration of technology in blended learning environments. Evaluating students' needs and the effectiveness of the tools being used will ensure the system remains efficient and accessible. By implementing these recommendations, educational institutions can enhance students' adaptability and satisfaction with blended learning across all academic levels.

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