

# Students' Assessment on Digital Learning: A Study of Asynchronous vs. Reflexive Approaches

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**Abstract:** *This study examines the effectiveness of asynchronous learning compared to reflexive assessment in the digital mode of learning among (School of Professional and Continuing Education) students. The research focuses on three factors influencing the assessment: independent learning, collaborative learning, and extended learning opportunities. A total of 320 participants were involved in the study, comprising 66 First Year, 81 Second Year, 82 Third Year, 90 Fourth Year, and 1 Fifth Year student, selected using the Sloven's Formula sampling technique. The researcher administered a questionnaire using Google Forms to gather data from the participants. The data analysis employed various descriptive statistical tools, including frequency distribution and percentage, mean and standard deviation, and analysis of variance (ANOVA). The results showed that the digital mode of learning was effective in fostering independent learning, with an average rating of 3.14. Collaborative learning also received positive feedback, with an average rating of 3.21. Additionally, the digital mode of learning provided significant opportunities for extended learning, as evidenced by an average rating of 3.20. In conclusion, the findings indicate that both independent and collaborative learning approaches in the digital mode are effective in the students' assessment. Moreover, students perceived the digital learning mode as offering valuable opportunities for extended learning experiences. Furthermore, the assessment of students regarding the reflexive aspect of digital learning varied depending on their profile variables*

**Keywords:** Students' Assessment, Digital Learning, Asynchronous, Reflexive

## I. INTRODUCTION

In the current educational landscape, meeting the needs and interests of students involves employing various modalities, including virtual and blended learning approaches. One such approach is the digital method of blended learning, which can present challenges for some students due to its intricacies. This study aims to investigate and evaluate this innovative learning approach, as it has become widely utilized in response to the Covid-19 pandemic.

Digital learning, considered a novel educational tool, provides students with online platforms through devices like computers, iPads, cellphones, tablets, and an internet connection. It involves a mix of technology, online instruction, and digital content. Many schools nationwide have adapted their teaching methodologies to ensure the delivery of quality education by incorporating virtual classrooms and blended learning.

The integration of digital learning in the classroom can range from basic tablet usage instead of traditional paper to more sophisticated applications of complex software and hardware (Pallof and Pratt, 2007).

It is crucial to consider the individual nature of each child in the learning process, including how they process content and the methods that best suit their learning style (Leshkovska & Spaseva, 2016). Creating an environment that allows students to express themselves and engage with the content and learning methods is essential.

To address the challenges posed by the pandemic, different institutions introduced REFLEX digital learning, a blended approach to education. REFLEX stands for Remote Flexible Learning Experience and has become a response to the call for digital and blended learning modalities. Emphasizing flexibility, remote access, and primary online delivery, REFLEX aims to sustain a quality learning experience for students.

As part of this study, the researcher sought to examine asynchronous learning and its impact on the assessment of students in the digital learning environment compared to the REFLEX approach. The focus is on the students'

experiences with the digital learning modality, which introduces a new way of learning and engagement through the REFLEX program.

## **II. BACKGROUND OF THE STUDY**

In recent years, the field of education has witnessed a rapid transformation with the advent of digital technologies and the integration of virtual learning modalities. These advancements have been further accelerated by the global Covid-19 pandemic, which compelled educational institutions worldwide to adapt quickly to remote and flexible learning approaches. Among these innovations, asynchronous learning and digital blended learning have gained prominence as effective methods to cater to the diverse needs of students and provide continuity in education during challenging times. Asynchronous learning refers to a flexible learning approach where students access and engage with educational materials at their own pace and convenience, without being bound to real-time interactions with instructors or peers. This method allows learners to access pre-recorded lectures, online resources, and digital content, enabling them to tailor their learning experiences to their individual schedules and preferences. As a result, asynchronous learning has become increasingly popular, especially in the context of distance education, as it overcomes the limitations of time and location barriers.

Meanwhile, digital blended learning combines traditional face-to-face instruction with digital tools and online platforms. By integrating technology into the learning process, students can access a wide range of resources, participate in interactive activities, and collaborate with peers beyond the physical boundaries of the classroom. This blended approach aims to optimize the learning experience by leveraging the strengths of both in-person and digital learning, enhancing engagement, and promoting student-centered education.

Many educational institutions worldwide, faced the urgent need to adapt its teaching methods to address the disruptions caused by the Covid-19 pandemic. To ensure a continuous and effective learning experience for its students, schools introduced the REFLEX digital learning program. REFLEX, which stands for Remote Flexible Learning Experience, sought to offer a versatile and responsive solution to the challenges posed by the pandemic. By leveraging asynchronous and blended learning approaches, REFLEX aimed to provide students with remote access to quality education while maintaining flexibility and adaptability to individual learning styles.

In this context, this study seeks to explore the effectiveness of asynchronous learning in the assessment of students' digital learning experiences, particularly concerning the REFLEX program. The researchers aim to investigate how students perceive and engage with the digital mode of learning vis-à-vis the REFLEX approach. By evaluating students' experiences and opinions, the study intends to shed light on the impact and efficacy of the digital learning modality, which has become a crucial component of modern education. The findings of this research can help educators, administrators, and policymakers make informed decisions on the integration of digital and blended learning approaches, ultimately contributing to the enhancement of education in the digital age.

## **III. METHODOLOGY**

For this study, a quantitative approach with a descriptive research design was adopted, specifically employing the survey method. This research design was considered appropriate as it allows for the investigation of one or more variables using various research methods. In this case, the study aimed to determine the profile of the participants and assess the students' experiences regarding digital mode of learning vis-à-vis the REFLEX program.

The primary instrument used in this study was a researcher-made questionnaire. The questionnaire consisted of two parts to gather comprehensive data from the participants.

Part 1: The first section of the questionnaire collected demographic information about the participants, including their sex, age, department, and year level. To ensure the validity and reliability of the questions, the survey items were validated by experts, research panel members, and guidance counselors.

Part 2: The second section of the questionnaire assessed the students' experiences with the digital mode of learning compared to the REFLEX approach. This section included carefully crafted questions to gauge their perceptions, engagement, and overall satisfaction with the learning modality.

The decision to employ a survey-based approach using a researcher-made questionnaire allowed for efficient data collection from a relatively large sample size. The use of validated questions ensured that the instrument effectively

measured the intended variables, enhancing the credibility of the findings. By analyzing the responses to the questionnaire, the researchers aimed to gain valuable insights into the effectiveness of the digital mode of learning and its comparison with the REFLEX program, thus contributing to the overall understanding of virtual learning experiences among the participants.

**IV. RESULTS AND DISCUSSION**

Throughout the Results and Discussion section, this study would strive to provide a comprehensive and objective analysis of the data, supporting all claims with evidence from the study. Its aim is to offer valuable insights into the effectiveness of asynchronous learning and its integration with REFLEX among students, contributing to the broader understanding of digital learning experiences in the context of modern education.

TABLE 1. PROFILE OF RESPONDENTS

Group		f	%
Age	23-24	28	8.75
	21-22	184	57.50
	19-20	108	33.75
Sex	Male	154	48.13
	Female	166	51.88
Year Level	5th year	1	0.31
	4th year	90	28.13
	3rd year	82	25.63
	2nd year	81	25.31
	1st year	66	20.63
	<b>N=</b>	<b>320</b>	<b>100</b>

The study included a total of 320 participants.

Regarding age distribution, the majority of respondents, 184 (57.50%), fell within the 21-22 years old category. The 19-20 years old group accounted for 108 (33.75%) participants, while the remaining 28 (8.75%) participants were in the age range of 23-24 years old.

In terms of sex, 166 (51.88%) of the participants identified as female, slightly outnumbering the 154 (48.13%) who identified as male. This indicates that there is a slight disparity in the distribution of students across the sexes.

With regards to their year level, the largest number of participants were 4th year students, comprising 90 (28.13%) of the total respondents. The 3rd year students represented the second-largest group with 82 (25.63%) participants, followed closely by 2nd year students, totaling 81 (25.31%) of the responses. The 1st year students constituted 66 (20.61%) of the participants, while only one (0.31%) response came from a 5th year student.

The data reveals variations in the distribution of students across different age groups, sexes, and year levels, providing valuable insights into the characteristics of the study participants.

TABLE 2. STUDENTS' ASSESSMENT OF THEIR INDEPENDENT LEARNING EXPERIENCES ON THE DIGITAL MODE OF LEARNING VIS-À-VIS REMOTE FLEXIBLE LEARNING EXPERIENCE SCHEME

Indicators	Mean	SD	VI	QD
I manage to understand the lessons easily and independently.	3.06	0.58	Agree	Effective
I keep myself focused on topic being discussed on class.	3.13	0.62	Agree	Effective
I feel independently comfortable on my studies through reflex.	3.03	0.64	Agree	Effective
I make time to think and brainstorm the topics given in the class.	3.16	0.58	Agree	Effective

Ivaluemytalentsfrombeingindependent through reflex.	3.13	0.66	Agree	Effective
I am confident on every situation on mystudylikerecitationduringclass discussion.	3.09	0.67	Agree	Effective
I build trust on myself in doing decisionmaking and problem solving to apply.	3.13	0.60	Agree	Effective
Ibuildself-confidenttoshowcompetence to others through reflex.	3.12	0.65	Agree	Effective
I give importance to the talents and power of myself throughindependentlearning.	3.15	0.58	Agree	Effective
I am worthy of myself in things that Iachieve on study like activities, etc.	3.19	0.60	Agree	Effective
I give much in self-reflection in finding my strength and weakness during classonline discussion.	3.23	0.62	Agree	Effective
I do brainstorming with myself before I decide on something what to do and toapply.	3.19	0.63	Agree	Effective
I execute well the thing that I havelearned during the class discussion.	3.15	0.60	Agree	Effective

One of the indicators, "I give much self-reflection in finding my strengths and weaknesses during online discussions," obtained the highest mean of 3.23 with a standard deviation of 0.62, indicating an agreement among students. This finding suggests that students recognize the importance of self-reflection in assessing their performance during online discussions and identifying areas for improvement. This resonates with John Dewey's ideas about education, which emphasize designing teaching and learning approaches that respond to students' specific needs and interests (Dewey, 1988). The practice of self-reflection demonstrates students' engagement and critical thinking in the digital learning environment.

On the indicator, "I feel independently comfortable with my studies through REFLEX," students obtained a mean of 3.03 with a standard deviation of 0.64, reflecting a general agreement among participants. This result indicates that students feel at ease in their studies during independent learning through the REFLEX program. The digital mode of learning, offering flexibility and remote access, allows students to comfortably engage in their studies within their preferred learning environment. This aligns with Larsson's (2021) concept of independent learning as a critical strategy in higher education, fostering students' self-reliance and self-activity in knowledge assimilation.

The study also revealed that students gained confidence in their recitations during class discussions within the REFLEX program, fostering a sense of camaraderie within the class. This finding supports John Dewey's idea that students should be engaged in active learning and inquiry, fostering confidence in expressing their ideas and learning (Dewey, 1988).

The study further explored the organization of independent learning in the REFLEX program, conceptualizing it as a process of self-regulation, involving phases such as planning, self-monitoring, controlling the pace and direction of work, and evaluation (Craig, 2016). This well-structured approach to independent learning enhances students' critical thinking and reflective skills, enabling them to continually develop new concepts and understandings through interactions and experiences.

The results of this study demonstrate the effectiveness of asynchronous learning and the integration of REFLEX in providing students with a comfortable and engaging digital learning experience. The emphasis on self-reflection, independent learning, and critical thinking fosters students' confidence and active participation in their education. These findings can inform educational institutions on the implementation of blended learning models and the importance of facilitating self-directed learning opportunities for students.

While the study provides valuable insights, it is not without limitations. The research focused on one educational institution, and the generalizability of the findings may be limited to similar contexts. Additionally, the study relied on self-reported data, which could be subject to bias or social desirability effects. Future research should consider using mixed-method approaches and a more diverse participant pool to enhance the comprehensiveness of the findings.

In conclusion, the results of this study shed light on the positive impact of asynchronous learning and the REFLEX program on students' learning experiences. The integration of digital and independent learning approaches is crucial in promoting student engagement, critical thinking, and confidence in the digital era of education. These findings contribute to the broader understanding of digital learning experiences and offer valuable insights for educators and policymakers in enhancing the quality of education in the digital age.

TABLE 3. STUDENTS' ASSESSMENT OF THEIR COLLABORATIVE LEARNING EXPERIENCES ON THE DIGITAL MODE OF LEARNING VIS-À-VIS REMOTE FLEXIBLE LEARNING EXPERIENCE SCHEME

Indicators	Mean	SD	VI	QD
I am comfortable with others in doing school activities through reflex even in virtual way.	3.17	0.63	Agree	Effective
I easily understand the discussions during online class with others in a reflex way of learning.	3.07	0.65	Agree	Effective
I value things that I have learned in reflex through sharing and contributions with others in different activities.	3.23	0.58	Agree	Effective
I find importance of relationship in sharing ideas and learning.	3.27	0.59	Strongly Agree	Highly Effective
I value one's presence by a collaborative learning principle.	3.27	0.57	Strongly Agree	Highly Effective
I ultimately gain on how collaboration works most effectively in every school activities.	3.23	0.57	Agree	Effective
I build a good connection to my teacher every time there is Something I need to understand.	3.18	0.62	Agree	Effective
I value unity as student by showing collaboration to each other.	3.26	0.58	Strongly Agree	highly Effective
I study well through reflex collaboration learning by discussions with others.	3.21	0.58	Agree	Effective
I do interactive with other through reflex by doing and executing together the learning or ideas.	3.22	0.59	Agree	Effective
I have sense of Interdisciplinary in digital mode of learning through reflex.	3.23	0.55	Agree	Effective
<b>Average</b>	<b>3.21</b>	<b>0.59</b>	<b>Agree</b>	<b>Effective</b>

The indicator "I find importance in the relationship in sharing ideas and learning" obtained the highest mean of 3.27 with a standard deviation of 0.59, indicating a strong agreement among students. This result highlights the students' recognition of the value of collaboration and the sense of relationship fostered during the digital mode of learning vis-à-vis REFLEX. The study shows that students highly appreciate the opportunities for collaborative learning experiences. This finding aligns with Bhasin's (2019) article, which emphasizes that working together in teams not only enhances skills but also cultivates cooperation and adaptability. The sense of unity and cooperation among students is particularly significant when facing challenges in the digital learning environment. The use of information and communication technology (ICT), such as web-based applications and social networking sites, further enhances collaboration and knowledge construction with the involvement of outside experts (Zhu, 2017).

On the other hand, the indicator "I easily understand the discussions during online class with others in a reflex way of learning" obtained a mean of 3.07 with a standard deviation of 0.65, indicating agreement among students. This result suggests that students generally find it manageable to comprehend discussions during online classes within the REFLEX program. The utilization of web-based applications and social networking platforms enhances communication and collaboration, contributing to effective knowledge sharing and distribution among students (Anshari, Alas, & Guan, 2016).

The finding also highlights the students' appreciation for the presence of their teachers in the remote flexible learning experience. The REFLEX program encourages a dynamic and interactive learning environment where individuals with diverse interests and abilities collaborate towards common goals, as described by Bhasin (2019).

The study's findings underscore the significance of collaborative learning experiences in the digital mode of learning. Students highly value the sense of relationship and cooperation, which contribute to effective knowledge construction and sharing. The use of technology, such as web-based applications and social networking platforms, further enhances communication and collaboration, creating an enriching and engaging learning environment.

In conclusion, the study's results reveal that students highly appreciate the collaborative learning experiences in the digital mode of learning vis-à-vis REFLEX. The sense of relationship and cooperation among students foster effective knowledge sharing and comprehension during online discussions. The use of technology plays a crucial role in facilitating communication and collaboration, making the remote flexible learning experience to students more dynamic and interactive.

Despite these valuable insights, the study has certain limitations. The research was conducted at a single institution, potentially limiting the generalizability of the findings to other contexts. Additionally, the study relied on self-reported data, which may be influenced by individual perceptions and biases. Future research could consider a more diverse participant pool and employ mixed-method approaches to further enrich the understanding of collaborative learning experiences in digital education settings.

TABLE 4. STUDENTS' ASSESSMENT OF THEIR EXPANDED LEARNING OPPORTUNITIES EXPERIENCES ON THE DIGITAL MODE OF LEARNING VIS-À-VIS REMOTE FLEXIBLE LEARNING EXPERIENCE SCHEME

Indicators	Mean	SD	VI	QD
I extend time in focusing the learning to practice and study through reflex.	3.15	0.57	Agree	Effective
I am able to focus on the discussion without environmental disturbances and noise in learning through reflex.	3.12	0.65	Agree	Effective
I learn new things in the online platform which I am able to apply such learning.	3.24	0.58	Agree	Effective
I am able to browse in vast information from the internet during digital learning through reflex.	3.23	0.57	Agree	Effective
I am able to learn and practice from the discussion facilitated by teacher in digital platform.	3.26	0.56	Strongly Agree	highly Effective
I am attentive in listening to my teachers in my online class without having problems and temptation of others.	3.15	0.64	Agree	Effective
I demonstrate a mastery of skills through reflex.	3.10	0.54	Agree	Effective
I apply my own learning in my daily life through reflex.	3.23	0.60	Agree	Effective
I engage in my own passion and personal interest through reflex	3.23	0.54	Agree	Effective
I increase my own learning in many different ways such as an expertise of using online platform.	3.31	0.54	Strongly Agree	highly Effective
<b>Average</b>	<b>3.20</b>	<b>0.58</b>	<b>Agree</b>	<b>Effective</b>

The first indicator, "I increase my own learning in many different ways such as expertise in using online platforms," obtained the highest mean of 3.31 with a standard deviation of 0.54, indicating a strong agreement among students. This result signifies that students were able to demonstrate proficiency in using various online platforms, which enriched their learning experiences. The digital mode of learning vis-à-vis REFLEX provided students with opportunities to explore different online tools and resources, enhancing their understanding of the subject matter. This finding aligns with Graham & Misanchuk's (2004) article, emphasizing the advantages of online learning in supporting students' learning abilities and offering flexibility for remote and isolated learners. The digital mode of learning not only facilitated students' access to learning materials but also encouraged their engagement and active participation in online

communities of learners. The flexibility of online courses allowed students to adapt their learning schedules to suit their individual needs, making the learning process more accessible and conducive to self-directed learning (Gillett-Swan, 2017). By incorporating digital learning in the classroom, students responded to the call for digital education and blended learning, promoting a flexible, remote, and efficient online delivery method through REFLEX.

On the other hand, the indicator "I demonstrate mastery of skills through REFLEX" obtained a mean of 3.10 with a standard deviation of 0.54, indicating agreement among students. This result suggests that students gradually improved their mastery of skills during their experience with remote flexible learning. John Dewey's philosophy emphasizes the importance of student engagement and ownership of learning, allowing them to take responsibility for evaluating the value and meaning of their experiences and taking necessary steps to progress (Moroye&Uhrmacher, 2009).

The result indicates that students were able to focus on honing their skills through the digital mode of learning in relation to REFLEX. Many students and instructors appreciated the ability to concentrate on course content without the distractions and issues that might arise in traditional classroom settings (Thomson, 2016). The relationship between teachers and students played a significant role in guiding students toward skill mastery. Collaborative learning, as a powerful principle in online course design and delivery, fostered a sense of community and interdependence among learners, promoting deeper knowledge generation (Harasim, 2017).

The study also highlighted the adoption of various strategies by students to enhance their learning experiences. Leveraging technology, students found it easier to explore different approaches, leading to better study outcomes. These strategies did not require extensive technological expertise from facilitators, but they contributed to building a sense of community and belonging among students in the online learning environment. Such initiatives fostered intrinsic motivation, encouraging students to actively participate and contribute to online communities of learners (Gillett-Swan, 2017).

In conclusion, the study's results demonstrate that students highly value the use of online platforms to enhance their learning experiences. The digital mode of learning vis-à-vis REFLEX empowered students to demonstrate expertise in using various online tools, contributing to their knowledge acquisition and engagement. Furthermore, students showcased their progress in skill mastery, which was facilitated by the flexible and interactive nature of remote flexible learning experiences. The collaborative learning approach and supportive teacher-student relationships played a crucial role in nurturing a sense of community and promoting student success.

It is essential to acknowledge the limitations of the study. The research focused on a specific educational institution, potentially limiting the generalizability of the findings to other settings. Additionally, the study relied on self-reported data, which may be influenced by individual perceptions and biases. To address these limitations, future research could explore a broader participant pool and employ mixed-method approaches to gain a more comprehensive understanding of digital learning experiences in various contexts.

## V. CONCLUSION

In conclusion, this study investigated asynchronous learning in the assessment of students on digital mode of learning vis-à-vis REFLEX. The research aimed to understand the students' experiences, perceptions, and effectiveness of the digital learning modality. Based on the responses of 320 participants, several key findings emerged, shedding light on the impact of the REFLEX program on students' learning experiences.

Firstly, students highly valued the collaborative learning experiences in the digital mode of learning. They recognized the importance of building relationships and cooperation during online discussions. The use of online platforms allowed students to explore various tools and resources, increasing their own learning and expertise in using technology for educational purposes.

Secondly, students felt comfortable and independent in their studies through REFLEX. The flexible and remote nature of digital learning empowered students to engage with their studies in a way that suited their individual needs. Mastery of skills gradually improved as students took ownership of their learning, a concept supported by John Dewey's philosophy.

Furthermore, the study highlighted the significance of teacher-student relationships in guiding students toward skill mastery and success. Collaborative learning played a pivotal role in fostering a sense of community and knowledge generation among learners, contributing to a more engaging and interactive learning experience.

The incorporation of digital learning through REFLEX showcased the institution's commitment to providing a quality and flexible education, especially during the challenging times brought about by the COVID-19 pandemic. The use of technology and online platforms offered students numerous opportunities for learning and growth.

Overall, the study reinforces the effectiveness of asynchronous learning in the digital age. It provides valuable insights for educational institutions, policymakers, and educators to enhance the quality of education by embracing blended learning models and facilitating self-directed learning opportunities for students.

Despite the study's contributions, there are certain limitations to be acknowledged. The research focused on a single institution, limiting the generalizability of the findings to other contexts. The reliance on self-reported data might have introduced biases in the responses. To address these limitations, future research could adopt mixed-method approaches and include a more diverse participant pool.

In conclusion, the findings of this study emphasize the importance of digital learning, collaboration, and student-centered approaches in education. As technology continues to evolve, asynchronous learning will undoubtedly play an essential role in shaping the future of education, enabling students to acquire knowledge and skills in a flexible, dynamic, and engaging manner.

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