

Gendered Perspective Flexible Learning Modality in Social Science: Navigating Students' Attitudes and Challenges to Achieve SDG 5 Gender Equality

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ABSTRACT

This study explores the attitudes and challenges faced by students of various genders in Flexible Learning Modality (FLM) within Social Science subjects. It highlights their perspectives and struggles while aiming to support Sustainable Development Goal (SDG) 5: Gender Equality in education. The researcher administered a questionnaire to a representative sample of 365 students across different genders. The findings reveal that students generally hold positive attitudes toward FLM and value its role in facilitating interactive learning. While some challenges may vary across genders, common issues – such as internet connectivity, time management, and the cost of engaging in FLM – were experienced by all genders and were not explicitly linked to gender differences. The researcher observed subtle differences in levels of agreement and experiences among male, female, gay, bisexual, and transgender students. The study underscores the need for inclusivity, flexible learning environments, gender-sensitive training for educators, and continuous feedback to address emerging challenges, including those with moderate agreement. By addressing these challenges and nurturing a more inclusive attitude toward flexible learning, schools can create digital spaces where all students, especially those marginalized gender groups, feel seen, supported, and valued in learning environments. In doing so, they take meaningful steps toward achieving SDG 5 and building a more equitable education system.

Keywords: attitude, flexible learning modality, Sustainable Development Goal 5, gender equality interactive learning

I. INTRODUCTION

Education plays a crucial role in shaping norms and opportunities in society. However, disparities persist in how students of different genders develop their perceptions and navigate challenges within educational environments. Although technological innovation has improved the teaching and learning process, not everyone receives the same advantage. This is evident in some situations where external factors such as economic inequality, discrimination based on cultural background, pandemics, and natural disasters intervene. These barriers have a greater effect on marginalized groups, including girls and gender-diverse learners, therefore restricting their capacity to access and benefit from education on an equal basis.

In the Philippines, natural phenomena like the rising Tropical Cyclone Wind Signal (DOST-PAGASA, 2022) and health crises like the COVID-19 pandemic (Lamery et al., 2023) have interrupted the system of education, prompting schools to transition toward alternative learning modalities. In response, the Isabela State University (ISU) introduced the Flexible Teaching and Learning Modalities (FTLM) last May 2020 in

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order to synchronize the University's objectives with Education 4.0 and support inclusive access (*ISU Embracing the New Normal Education Landscape*, 2021). However, the transition to flexible learning has introduced new challenges. Many students still struggle with access to learning materials, electricity, and stable internet connections – issues often shaped by gender (Philippine Institute for Development Studies, 2024).

Although the FLM initiative strives for inclusivity, it may unintentionally reinforce existing inequalities. Studies show that gender biases are still evident in terms of content and teaching approaches (UNESCO, 2020). Educating girls is associated with long-term social and economic benefits (World Bank, 2018; GPE, 2019), yet many still encounter barriers to completing their education. These barriers are part of a bigger issue linked to gender inequality, with nearly 2.4 billion women worldwide who do not have the same economic rights compared to men (United Nations, n.d.). These findings remind us that inclusivity in education means making sure every student, regardless of their gender identity, has an equal chance not just to learn, but to thrive on the path they chose.

Studies about online learning reveal mixed results: some indicate that female learners are more focused and committed in virtual settings (Richardson & Woodley, 2003), while others indicate that males have a more positive attitude towards the use of online platforms (Nistor, 2013; Mumba & Sultana-Machindu, 2024). In the case of ISU's implementation of FLM, these conflicting tendencies can affect the learner participation across different genders. It is, therefore, crucial to investigate how these gendered patterns are exhibited in localized educational settings to serve as an empirical basis for developing more equitable and responsive learning modalities.

On the other hand, there are some studies suggesting no significant gender-based differences among digital learning sites (Yu, 2021; Manun et al., 2022). Further work identifies the gender gaps in online learning, where girls and LGBTQ students encounter barriers, including limited access to technology, engagement gaps, and greater exposure to cyberbullying (Korlat et al., 2021; Kamal et al., 2023; Mahinay et al., 2024). Although males mostly have a positive attitude towards online learning, they also encounter barriers, like lower intrinsic motivation, lower participation, and less teacher interaction amid the pandemic-forced shift to online learning (Korlat et al., 2021).

Situational evidence from other countries illustrates how normalized these inequalities can be. For instance, a study in Iraq revealed that while 39% of students rejected the idea of a digital gender divide, more than half admitted that boys had greater access to phones and internet, implying that many learners suffer from inequality without realizing it (Kamal et al., 2023). This finding somehow indicates just how deeply inequality can become integrated into daily life, so much so that students experience it, but do not even know it. In large parts of Africa, the same patterns exist, where restricted digital access and strict gender norms don't just keep girls offline, but leave them behind in school and life as well. These global patterns mirror the conditions experienced by most Filipino learners, highlighting how pressing it is to understand the intersection of gender with flexible learning in local contexts.

This contradiction in findings indicates that gender-related experiences in online learning are more complex and context-specific, highlighting the importance of studying intersecting factors like gender identity, socio-economic status, and digital literacy in determining equitable access to digital education. These issues should not

be overlooked, as disengagement can further compromise academic performance in online education (Van Houtte, 2004, as cited in Korlat et al., 2021). Even within online learning environments, these issues persist (Borloz et al., 2019, as cited in Mahinay et al., 2024), emphasizing the necessity for more equitable educational systems and policies. Addressing these persistent issues requires moving beyond access to make online learning inclusive for all. This is where Sustainable Development Goal 5 becomes relevant, as it advocates for gender equality and the empowerment of all learners, no matter their gender identity.

Gender equality in education means making sure everyone—no matter their gender identity—has the same chance to learn, grow, and succeed. Promoting education to address gender-related challenges and funding campaigns to curb harmful cultural practices can significantly improve conditions (United Nations, n.d.). Although there have been improvements over the years, many students still face unfair barriers. These challenges can hold people back from reaching their full potential. Creating truly inclusive learning spaces is key to building a more inclusive and respectful world for all.

Despite growing interest in FLM, most existing research provides generalized or mixed findings, often based on international data. There remains a noticeable gap in localized, gender-specific studies that explore how students of different gender identities—beyond the traditional binary—experience flexible learning in post-pandemic Philippine settings. Few studies explicitly connect these experiences to broader development goals like Sustainable Development Goal 5 (SDG 5), which seeks to eliminate gender disparities in education. This study addresses that gap by examining the gendered attitudes and challenges students face within flexible learning environments. Specifically, it explores: (1) whether students' attitudes toward flexible learning significantly differ by gender; (2) what challenges are encountered across gender identities, and whether these challenges differ significantly; and (3) how these experiences align with the aims of SDG 5 in promoting inclusive and equitable education. Through this analysis, the study aims to inform more responsive educational practices that ensure no student is left behind.

II. METHODS

A. Research Design

This study employs a quantitative, non-parametric approach to analyze gender-based differences in students' attitudes and challenges related to SDG 5: Gender Equality in education. Descriptive statistics were used to systematically summarize the data in an attempt to describe the relationship between variables of the sample or population (Kaur et al., 2018). While non-parametric inferential tests, specifically the Kruskal-Wallis H-test and the Mann-Whitney U test, were used to assess group differences, such as, the respondents' gender (Okoye & Hosseini, 2024). This approach is useful for the mass collection of data and statistical analysis, thus making it efficient in identifying patterns that can influence policy and practice (Creswell, 2014; Babbie, 2016).

B. Participants of the Study

The study employed a convenience sampling technique. This technique enhances the sample's representativeness and improves the reliability and validity of the results (Acharya et al., 2013). Conversely, it is challenging to apply convenience sampling results to populations with distinct characteristics from the readily available community (Andrade, 2020). Nevertheless, including many gender identities emphasizes the importance of increasing diversity and representation in this study.

However, due to convenience sampling and differential willingness to participate, some gender groups were underrepresented. Though this limits generalizability, the presence of diverse identities still offers valuable insights into student experiences in flexible learning modalities.

C. Instrumentation and Data Analysis

The primary data collection tool utilized was a structured survey questionnaire to capture students' attitudes toward flexible learning and perceived challenges in navigating gender-related education experiences. The questionnaire for flexible learning was adapted from the study of Adewole-Odeshi (2014) and Hassan Ja'ashan (2015). The questionnaire for challenges perceived by respondents during online classes was adapted from the study of Mailizar et al. (2020). To ensure wide reach and accessibility, the researcher administered the questionnaire online using Google Forms. The researcher distributed online surveys via email and educational platforms.

Prior to full deployment, a pilot study involving thirty students was conducted to confirm the validity and reliability of the instrument. The researcher used a small sample of thirty students in a pilot study to confirm the validity and reliability of the survey instrument. Feedback from this study helped refine the survey questions. The researcher assessed reliability using Cronbach's alpha and validity through content and construct validation techniques (Taherdoost, 2016).

Once data collection was completed, statistical software was used to analyze the responses. Descriptive statistics, including frequencies and percentages, were used to organize and summarize the data (Kaur et al., 2018). To examine significant differences in students' attitudes and perceived challenges toward flexible learning modalities across different genders, the Kruskal-Wallis H-Test and the Mann-Whitney U Test were employed (Okoye & Hosseini, 2024).

D. Ethical Approval and Informed Consent

Participants were informed about the purpose of the study, their rights, and the confidentiality of their responses. The researcher secured informed consent from all respondents, ensuring voluntary participation and adherence to ethical standards (Resnik, 2018).

III. RESULTS AND DISCUSSION

A. Profile of the Respondents

Table 1 illustrates the distribution of demographics based on respondents' gender. Most of the respondents were female, 226 or 61.92 percent, followed by 126 or 34.52 percent males. There were eight or 2.19 percent bisexuals, four or 1.10 percent gays, and one or 0.27 percent transgender. Due to this imbalance in the number of respondents by gender, the study doesn't try to make generalized claims about all gender groups. Rather, it focuses on the day-to-day experiences of learners, those from

gender identities that don't have much representation. This approach allows the study to value each person's input in the data and stay aware of the different learning experiences encountered in FLM.

Table 1.

Gender Profile of Respondents.

Gender	Frequency (N = 365)	Percent
Male	126	34.52
Female	226	61.92
Gay	4	1.10
Bisexual	8	2.19
Transgender	1	0.27

B. Difference in the Attitude of Respondents According to Gender

Table 2.

Difference in Respondents' Attitude towards Flexible Learning Modality in Social Science according to Gender.

STATEMENTS	Male		Female		Gay		Bisexual		Transgender		Chi-Square	Sig.
	M	Desc.	M	Desc.	M	Desc.	M	Desc.	M	Desc.		
1. If available, I intend to use e-learning tools during the semester.	2.14	A	2.00	A	1.50	A	1.50	A	1.00	SA	7.90*	0.05
2. If available, I intend to use e-learning tools as frequently as possible.	2.29	A	2.18	A	2.50	FA	1.63	A	2.00	A	7.14 ^{ns}	0.07
3. If available, I intend to use e-learning tools whenever possible for my work course.	2.26	A	2.07	A	2.25	A	1.88	A	1.00	SA	5.53 ^{ns}	0.14
4. I like the idea of using e-learning tools.	2.26	A	2.15	A	1.75	A	1.88	A	2.00	A	2.62 ^{ns}	0.45
5. I have a generally favorable attitude towards using e-learning tools	2.50	FA	2.40	A	2.50	FA	2.25	A	2.00	A	1.57 ^{ns}	0.67
6. I believe it will be a good idea to use e-learning tools in accomplishing my work course.	2.29	A	2.15	A	2.00	A	2.13	A	2.00	A	1.74 ^{ns}	0.63
7. Using e-learning tools is a great idea in learning.	2.25	A	2.11	A	1.50	A	2.13	A	2.00	A	3.66 ^{ns}	0.30
8. Flexible Teaching and Learning Modality (FLM) activities are interactive.	2.39	A	2.25	A	2.00	A	2.38	A	1.00	SA	2.45 ^{ns}	0.48

9. FLM makes my English language skills better.	2.48	A	2.32	A	2.25	A	2.75	FA	2.00	A	5.12 ^{ns}	0.16
10. FLM is easy.	2.80	FA	2.85	FA	3.00	FA	2.75	FA	2.00	A	0.44 ^{ns}	0.93
11. FLM is collaborative.	2.45	A	2.44	A	2.50	FA	2.38	A	2.00	A	0.08 ^{ns}	0.99
12. FLM are useful and interesting.	2.47	A	2.27	A	2.25	A	2.38	A	2.00	A	2.92 ^{ns}	0.40
13. FLM enhances my interaction between teachers.	2.52	FA	2.39	A	2.00	A	2.63	FA	2.00	A	2.96 ^{ns}	0.40
14. FLM tasks are clear.	2.45	A	2.45	A	2.50	FA	2.88	FA	2.00	A	1.65 ^{ns}	0.65
15. FLM gives me enough time to do my tasks.	2.32	A	2.25	A	2.50	FA	2.63	FA	2.00	A	3.14 ^{ns}	0.37

As gleaned from the table, the majority of the items were rated between 2.14 and 2.48, indicating “Agree” by the male respondents. The result further indicated that if available, they intend to use e-learning tools during the semester as frequently as possible and whenever possible for their coursework. They also liked the idea of using e-learning tools and agreed that using e-learning tools is a great idea for learning. For them, FLM activities are interactive, collaborative, clear, useful, and interesting, as they improved their English language skills, gave them enough time to do their tasks, and enhanced their interaction with teachers. Generally, male respondents had a favorable attitude towards FLM, which supports the findings of Nistor (2013) and Mumba and Sultana-Machindu (2024).

Among the females, only one rated “Fairly agree” with a mean of 2.85. As such, it indicates that FLM is somewhat collaborative on their part. The mean ratings from 2.45 indicated they agreed with the rest of the items. Therefore, if available, they intend to use e-learning tools during the semester, as frequently as possible, and whenever possible for their coursework. Similarly, they liked the idea of using e-learning tools and agreed that it would be a good idea to use e-learning tools in accomplishing their coursework. They had a generally favorable attitude towards using e-learning tools and agreed that using e-learning tools is a great idea in learning. Likewise, in their notion, FLM activities are interactive, clear, easy, collaborative, useful, and interesting. FLM enhanced their interaction with teachers, gave them enough time to do their tasks, and made their English language skills better. Similarly, Richard and Wooley (2003) gleaned from the results of their study that females had a more positive outlook towards online learning than males. This result demonstrates how female learners view e-learning resources as a critical component of their academic path, supporting other findings that indicate their generally favorable attitudes regarding online education. Beyond the binary gender identities, the study also seeks to gain a deeper understanding of the experiences of minority gender groups in engaging with FLM.

Among gay respondents, they rated nine of 15 items from 1.50 to 2.25 or “Agree.” This data revealed that if available, they intend to use e-learning tools during the semester and whenever possible for their coursework. They liked the idea of using e-learning tools and affirmed that using e-learning tools is a great idea for learning. In addition, they believed that it would be a good idea to use e-learning tools in accomplishing their coursework. On their part, FLM activities are interactive, useful, and interesting. It enhanced their interaction with teachers and made their English language skills better.

However, they rated the rest of the items from 2.50 to 3.00 or “Fairly agree.” Hence, if available, they somewhat intend to use e-learning tools as frequently as possible, and their attitude toward using e-learning tools is fairly favorable. Similarly, their stance was that FLM is fairly easy, clear, and collaborative, and somewhat gave them enough time to do their tasks. In comparison with their male and female peers, this suggests a slightly more reserved or moderate perception of FLM’s effectiveness that could point to subtle gaps or feelings of belonging within the FLM. This situation emphasizes the need for a more inclusive learning modality that ensures a sense of belonging for diverse gender backgrounds and creates a sense of higher participation for all learners. Opportunities exist for individuals in the academe to examine the different school interventions related to gender issues.

Four respondents who identified themselves as gay participated in the study. Unfortunately, no clear conclusions could be made from the bisexual and transgender respondents due to the limited number and lack of detailed data. This underrepresentation is a recognized limitation of the study. It highlights the importance of future studies to ensure greater inclusion and visibility of these voices, so that varied gender identities are represented meaningfully in educational research and policy-making.

Among all gender groups, the students generally showed a favorable attitude toward using e-learning tools, with male and female respondents expressing strong agreement that FLM was interactive, useful, and conducive to improving language skills and interaction with teachers. Such findings are consistent with earlier research, such as Richard and Wooley (2003), which found female students having a positive attitude towards online learning.

For respondents who identified as gay, the findings were somewhat equivocal. Though they concurred with most of the advantages of e-learning tools—like better interaction and greater language ability—their ratings were more middling on items about clarity, ease, and collaboration. These were often rated as “fairly agree,” suggesting a somewhat more conservative or less affirming experience with FLM than their male and female peers. This finding could point to subtle challenges in digital learning environments where inclusivity and diversity of gender identity representation may not always be satisfactorily addressed. While the gay respondents were merely four in number, their viewpoints provide a valuable perspective on the complex realities of learning within adaptive modalities like the FLM.

Unfortunately, bisexual or transgender learners were not sufficiently represented in the data to draw conclusions. This limitation emphasizes that future researchers must include more inclusive sampling in future research and pay greater attention to ensuring that all gender identities are meaningfully included in both the design and evaluation of learning experiences. By acknowledging and investigating these differences, this study promotes more inclusive and flexible learning that goes beyond general trends and toward a deeper understanding of students’ lived realities.

C. Challenges of Students According to Gender

Table 3a indicates the challenges encountered by students of different genders toward FLM. In terms of teacher factors, males, females, gays, and bisexuals occurred

with all items. The mean ratings from 1.50 to 2.14 or “Agree” indicated their perception that their teachers had sufficient knowledge and skill to use e-learning during the Covid-19 pandemic, were confident in using e-learning during the Covid-19 pandemic, delivered the lessons properly in e-learning with the aid of a stable internet connection, agreed that the use of e-learning in teaching was useful during this pandemic in teaching the students, and delivered lessons that were relevant to the content of the module distributed. The transgender also concurred with the above statements, except on one where the respondent rated 3.00 or “Fairly agree”. Specifically, in his/her observation, the teachers fairly delivered the lessons properly in e-learning with a stable internet connection. These results corroborate with those of Yu (2021), who found no apparent disparities in online learning outcomes between genders. He does, however, propose that gender preferences may balance each other out and that they may provide gender-specific courses to meet the needs of particular students. This finding may answer why, with only slight variations in perception, all gender groups in this study fairly agreed on teacher aspects.

Table 3a.

Challenges of Students toward Flexible Teaching and Learning Modality according to Gender.

STATEMENTS	Male		Female		Gay		Bisexual		Transgender	
	M	Desc.	M	Desc.	M	Desc.	M	Desc.	M	Desc.
<i>Teacher</i>										
1. My teachers have sufficient knowledge and skill to use e-learning during the Covid-19 pandemic.	2.00	A	1.76	A	1.50	A	1.50	A	2.00	A
2. My teachers are confident in using e-learning during the Covid-19 pandemic.	1.98	A	1.82	A	1.50	A	1.75	A	2.00	A
3. My teachers deliver the lessons properly in e-learning with the aid of stable internet connection.	2.14	A	1.92	A	1.50	A	1.75	A	3.00	FA
4. My teachers agree that the use of e-learning in teaching is useful during this pandemic in teaching the students.	2.10	A	1.91	A	1.50	A	1.88	A	2.00	A
5. The lesson delivered by teachers is relevant to the content of the module distributed.	2.02	A	1.82	A	2.00	A	1.88	A	2.00	A
<i>School</i>										
1. My school has an e-learning system.	2.07	A	1.83	A	1.50	A	2.00	A	2.00	A
2. My school has reliable internet connection.	2.29	A	2.21	A	3.00	FA	2.38	A	2.00	A
3. School regulations support the use of e-learning during the Covid-19 pandemic.	2.06	A	1.92	A	1.50	A	2.00	A	2.00	A
4. Textbooks are in line with e-learning use.	2.29	A	2.19	A	2.00	A	2.25	A	2.00	A

5. My school provides technical support for e-learning use.	2.26	A	2.27	A	2.00	A	2.38	A	2.00	A
6. I have enough time to prepare activities in my e-learning material.	2.20	A	2.18	A	2.25	A	2.13	A	2.00	A

Curriculum

1. Learning and teaching resources that are available on the e-learning system are in accordance with my course.	2.17	A	2.10	A	2.00	A	2.13	A	2.00	A
2. The school gives us assessments that are in line with e-learning use.	2.12	A	2.00	A	1.75	A	1.88	A	2.00	A
3. I can learn the contents of subject using e-learning.	2.24	A	2.16	A	1.50	A	1.88	A	2.00	A
4. Activities assigned to me are relevant to the contents of the subject.	2.13	A	2.09	A	2.00	A	2.13	A	2.00	A
5. I can easily understand the contents of the subject using e-learning platforms.	2.45	A	2.35	A	1.75	A	2.25	A	2.00	A

Student

1. I have sufficient knowledge and skill in the use of e-learning.	2.30	A	2.27	A	2.00	A	2.00	A	2.00	A
2. I have devices (i.e. laptop and tablet) for the use of e-learning.	2.45	A	2.46	A	2.50	FA	2.25	A	2.00	A
3. I am interested in using e-learning.	2.34	A	2.22	A	2.00	A	1.63	A	2.00	A
4. I have internet connection.	2.25	A	2.10	A	2.00	A	2.25	A	2.00	A
5. I can access the e-learning system.	2.32	A	2.23	A	2.00	A	2.13	A	2.00	A

However, the underlying difference in terms of transgender learner might be more than a matter of internet stability – it can also be interpreted as part of a larger trend where transgender learners are marginalized in digital learning. Limited engagement or perceived inequity in the teaching process can be an indicator of discomfort in digital spaces that are not sensitive or inclusive to their identity (Mahinay et al., 2024). This calls for gender-responsive pedagogy within online environments.

The males, females, bisexuals, and transgender respondents' agreed with all of the items under school factors. This finding was revealed by the mean ratings from 1.50 to 2.38. Hence, they observed that their school has an e-learning system with a reliable internet connection and textbooks that are in line with e-learning use. Likewise, they believed that school regulations supported e-learning during the Covid-19 pandemic, provided technical support for e-learning use, and that they had enough time to prepare activities in their e-learning material. The gays also concurred

with these observations, but not in one item, which they rated with 3.00 or “Fairly agree”. Specifically, according to them, their internet connection was fairly reliable.

Such nuanced dissatisfaction with the internet among gay students might imply economic inequality or limited support in the household, which conditions generally mix with society-based stigma and familial rejection. Digital marginalization, in this case, cannot be separated from the broader social and cultural challenges LGBTQ learners experience, particularly in conservative and unsupportive settings (Kamal et al., 2023).

On curriculum, all groups agreed with mean ratings from 1.50 to 2.45. Thus, males, females, gays, bisexuals and the transgender affirmed that the learning and teaching resources that are available on the e-learning system were in accordance with their course, the school gave assessments that are in line with e-learning use, and they were able to easily learn and understand the subject’s content using e-learning. Activities assigned to them are relevant to the content of the subject using e-learning platforms.

Although there was a consensus, it is worth critically examining whether the curriculum feels inclusive to minority gender students. Standardized content may overlook the varied experiences or exclude representation of LGBTQ identities, influencing emotional engagement and learning satisfaction, even when technical delivery is sufficient (Korlat et al., 2021). A more inclusive curriculum might validate diverse backgrounds, like gender, that could create a sense of belonging for marginalized students.

On student factors, the males, females, bisexuals, and transgender respondents concurred, and gave mean ratings from 1.63 to 2.46 or “Agree.” Hence, they stated that they had sufficient knowledge and skill in using e-learning, had devices (i.e. laptop and tablet) and internet connection, were interested in using e-learning, and could access the e-learning system. The gays, on the other hand, corresponded with the above qualities, except in one, where they gave a mean rating of 2.50 or “Fairly agree.” They had devices (i.e. laptop and tablet) and internet connection for use of e-learning, but they felt it was not enough.

This perception indicates a fundamental gap in digital equity. LGBTQ students, particularly those who identify as gay or transgender, might have unequal opportunities to access digital tools because of familial relations or socioeconomic hardship. (insert study) Digital divide, in this case, cuts across identity-based vulnerabilities, requiring special intervention.

The findings align to some extent with Korlat et al. (2021), who observed that females tend to be more engaged in digital learning and find it more valuable than males who experienced drawbacks in online learning. However, the current study suggests that engagement levels across genders are fairly similar, with slight differences in access and perception of resources. The disparities in digital access also mirror Kamal et al.’s (2023) findings, who indicated that boys tend to have better access to mobile phones and internet connectivity, particularly in areas like Iraq and parts of Africa.

Aside from male and female differences, the study also identified that LGBTQ learners experience unique challenges in e-learning, including social isolation and limited access to digital tools. This is the same as in the finding wherein cyberbullying and marginalization are experienced by learners in virtual learning environments (Borloz et al., 2019, as cited in Mahinay et al., 2024). These issues further support the

fact that there is a need for more inclusive digital education policies and an improved support system. Further, programs must go beyond binary gender classifications to realize voice and visibility for gender minorities whose lives typically become invisible within large-scale quantitative research. These policies need to exceed access and infrastructure, including robust anti-discrimination protection, training for teachers on gender sensitivity, and inclusion of LGBTQ narratives within the curriculum to ensure an equitable learning environment.

Table 3b shows the differences in the perception of the respondents on challenges of students toward Flexible Teaching and Learning Modality according to their gender.

Table 3b.

Differences in Challenges of Students towards Flexible Teaching and Learning Modality according to Gender.

STATEMENTS	Chi-Square	Sig.
<i>Teacher</i>		
1. My teachers have sufficient knowledge and skill to use e-learning during the Covid-19 pandemic.	8.19*	0.04
2. My teachers are confident in using e-learning during the Covid-19 pandemic.	3.22 ^{ns}	0.36
3. My teachers deliver the lessons properly in e-learning with the aid of stable internet connection.	6.90 ^{ns}	0.08
4. My teachers agree that the use of e-learning in teaching is useful during this pandemic in teaching the students.	3.52 ^{ns}	0.32
5. The lesson delivered by teachers is relevant to the content of the module distributed.	4.16 ^{ns}	0.24
<i>School</i>		
1. My school has an e-learning system.	5.61 ^{ns}	0.13
2. My school has reliable internet connection.	2.07 ^{ns}	0.56
3. School regulations support the use of e-learning during the Covid-19 pandemic.	2.13 ^{ns}	0.55
4. Textbooks are in line with e-learning use.	0.97 ^{ns}	0.81
5. My school provides technical support for e-learning use.	0.61 ^{ns}	0.89
6. I have enough time to prepare activities in my e-learning material.	0.12 ^{ns}	0.99
<i>Curriculum</i>		
1. Learning and teaching resources that are available on the e-learning system are in accordance with my course.	0.40 ^{ns}	0.94
2. The school gives us assessments that are in line with e-learning use.	1.67 ^{ns}	0.64
3. I can learn the contents of subject using e-learning.	3.67 ^{ns}	0.30
4. Activities assigned to me are relevant to the contents of the subject.	0.09 ^{ns}	0.99
5. I can easily understand the contents of the subject using e-learning platforms.	3.19 ^{ns}	0.36
<i>Student</i>		
1. I have sufficient knowledge and skill in the use of e-learning.	0.90 ^{ns}	0.83
2. I have devices (i.e. laptop and tablet) for the use of e-learning.	0.44 ^{ns}	0.93
3. I am interested in using e-learning.	4.92 ^{ns}	0.18
4. I have internet connection.	1.91 ^{ns}	0.59
5. I can access the e-learning system.	0.83 ^{ns}	0.84

One item under teacher factors had a chi-square value of 8.19 with a 0.04 significance level, which led to the rejection of the null hypothesis. This finding implied that there was a significant difference in the perception of the respondents;

that is, the gays and the bisexuals had the same level and the highest insight among the group regarding the sufficiency of their teachers' knowledge and skill to use e-learning during the COVID-19 pandemic. The findings proved that there is a difference between the challenges of students when grouped according to profile. This study can help teachers consider gender-based differences in students when planning instruction. The result could also serve as a potential topic for integrating gender-focused issues into discussions on multiculturalism. The findings of Korlat et al. (2021) support this result, highlighting that gender differences exist in digital learning perceptions. Similarly, Mahinay et al. (2024) emphasized that LGBTQ students face unique challenges in digital education, which align with the observed disparities in student experiences based on gender identity.

It is particularly noteworthy that gay and bisexual learners experienced teachers' digital competence more sensitively than others. Such greater sensitivity may be linked to their common experience of educational marginalization or exclusion, making them more sensitive to the quality and inclusivity of the teaching process. For so many LGBTQ learners, particularly online learning, a teacher's ability to teach effectively using digital tools may not only be an academic anchor but also a fleeting source of affirmation and support. Their experience, therefore, is not merely technical—it is intensely personal, influenced by a desire for safety, respect, and visibility in virtual classrooms where they feel most invisible or at risk.

The rest had chi-square values from 3.22 to 6.90 with significance levels greater than 0.05. Therefore, the null hypothesis was accepted; hence, their observation about the teachers is the same as their confidence in using e-learning during the Covid-19 pandemic, how they delivered the lessons properly in e-learning with the aid of a stable internet connection, their level of agreement that the use of e-learning in teaching was useful during pandemic in teaching the students and the giving of lessons that are relevant to the content of the module distributed.

For school factors, the chi-square values ranged from 0.12 to 5.61, with significant levels greater than 0.05, leading to the acceptance of the null hypothesis. Therefore, regardless of gender, the respondents had the same understanding that the school had an e-learning system with a reliable internet connection. They also agreed that school regulations supported e-learning during the COVID-19 pandemic, textbooks were in line with e-learning use, the school provided technical support for e-learning use, and they were given enough time to prepare activities in their e-learning material.

The same is true with curriculum factors and student factors. The chi-square values from 0.09 to 4.92 with significance levels greater than 0.05 led to the acceptance of the null hypothesis. This result implied that regardless of gender, the respondents had a comparable observation that learning and teaching resources available on the e-learning system were in accordance with their course, that the school gave them assessments that were in line with e-learning use, the activities assigned to them were relevant to the content of the subject, their ability to learn the content of the subject using e-learning and how they understood the content of the subject using e-learning platforms.

Likewise, they had similar levels of knowledge and skills in using e-learning. Their access to devices (i.e. laptop and tablet) and internet connectivity was also comparable. Additionally, they had the same level of interest in using e-learning and had equal access to the e-learning system.

Yet, the consistency across responses when it comes to factors must not cloud the lived inequities between minority gender groups. Quantitative similarity does not always equate to qualitative equity. For instance, while LGBTQ learners may report having access to equipment or systems, the learning environment in which and where they utilize these platforms—like a lack of support at home or worry about judgment online—can have a great impact on their participation and sense of self-esteem. These results of the study call for deeper, more nuanced explorations into the intersection of gender identity and digital learning experiences. Where inclusion is not measured in terms of availability, but through real empowerment and affirmation.

IV. CONCLUSION

This study highlights the varied, often ignored experiences of students using flexible learning modalities (FLM) in the post-pandemic Philippines. Learners across gender identities generally recognized e-learning's benefits. They cited its interactivity and capacity to support academic growth, yet differences, subtle but meaningful, existed in perceptions of its effectiveness. Male and female students tended to express a slightly stronger confidence and comfort with FLM, while LGBTQ learners, in particular those identifying as gay and/ or transgender, often responded with caution along with hesitation.

These nuances respond to the first objective, affirming that attitudes of students toward FLM do differ depending on gender. For many minority gender students, FLM wasn't just about mastering content or using technology—it was also about finding space within a system where they could feel seen, safe, and supported. These groups gave more modest ratings to items related to collaboration, clarity of tasks, as well as ease of use, which were more modestly rated by these groups. These experiences hinted that those learners go beyond screens and software into the realm of belonging and emotional safety.

When it comes to the second objective—exploring the challenges students face—familiar barriers emerged for everyone: poor internet connectivity, lack of devices, as well as managing time. But struggles such as these hit harder for some learners. Specifically, gay and transgender learners reported facing these issues more intensely. They often did so in environments that lacked support or understanding. The sense of being isolated, both socially and digitally, was a quiet but consistent theme. One key finding was a significant difference in how gay and bisexual students rated their teachers' digital competence—perhaps because for them, an inclusive and skilled teacher can be more than an educator; they can be a lifeline of affirmation in an otherwise disconnected learning world.

In response to the third research objective, these findings strongly align with the goals of Sustainable Development Goal 5 (SDG 5), which calls for the elimination of gender disparities in education. However, this study shows that inclusion isn't just about offering equal tools—it's about understanding and meeting students where they are, especially those whose identities don't neatly fit into traditional categories. True equity in education is about more than access—it's about belonging.

V. RECOMMENDATIONS

Based on the findings of the study, to move toward a more inclusive and compassionate digital learning environment, schools and policymakers should consider the following: 1) train educators in gender-sensitive teaching, so they can create virtual spaces where all students—especially those from marginalized genders—feel acknowledged and respected; 2) make room for diverse stories and identities in curriculum materials, so students see themselves reflected in what they are learning; 3) create online communities and peer networks that counteract isolation and foster solidarity among students, especially those who might not be supported at home; 4) prioritize digital equity through the guarantee of private, consistent learning spaces for LGBTQ students and the provision of tools they need to succeed; and, 5) create policies that go beyond binaries, employing data and lived experiences of local students to inform education systems that truly adhere to the mantra “leave no one behind” in learning.

Ultimately, this study fills a critical gap in the emerging dialogue on flexible learning by amplifying the voices of gender-diverse students in the Philippines. It reminds us that just using technology doesn’t mean it fosters inclusion—but when used hand in hand with empathy, representation, and intentional policy, technology can help create classrooms in which every student, no matter their gender identity, has an opportunity to thrive in educational settings.

VI. LIMITATIONS

The data on respondents’ gender distribution may not capture the full distribution of gender diversity, since most respondents were either female or male. Additionally, self-reported data are based on a survey, which may be prone to response bias. The data are also only for students from a specific educational institution, which may not fully represent the diversity of attitudes and challenges across different areas or types of schools. Moreover, the study did not take into consideration other confounding factors that can affect a student’s attitude and challenges, such as economic background or belief system.

VII. IMPLICATIONS FOR POLICY AND PRACTICE

The findings of the study suggest several implications for policy and practice. First, e-learning environments with inclusivity must be prioritized. Educational institutions need to focus on designing inclusive e-learning environments that address the specific challenges faced by different gender groups. These efforts may include making technology and resources affordable.

Second, gender-sensitive training for educators is essential. Education programs for training teachers should have a gender-sensitive approach to empower and support all students regardless of their gender backgrounds.

Lastly, continuous feedback mechanisms should be implemented to help identify and address emerging challenges in real time, ensuring that the e-learning environment remains supportive and effective for all students.

VIII. REFERENCES

Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it? *Indian Journal of Medical Specialties*, 4(2), 330-333.

- Adewole-Odeshi, E. (2014). Attitude of students towards e-learning in south- west nigerian universities: an application of technology acceptance model, 7–9. *Digital Commons*. <https://digitalcommons.unl.edu/libphilprac/1035/>
- Babbie, E. (2016). *The Practice of Social Research* (14th ed.). Cengage Learning.
- Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' Perspective. *Sustainability*, 12(24), 10367. <https://doi.org/10.3390/su122410367>
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Sage Publications.
- DOST-PAGASA Modifies Tropical Cyclone Wind Signal (TCWS) System. (2022, March 23). DOST-PAGASA; Department of Science and Technology - Philippine Atmospheric, Geophysical and Astronomical Services Administration. <https://bagong.pagasa.dost.gov.ph/press-release/108>
- Global Partnership for Education (GPE). (2019). *Gender equality and inclusion in education*. <https://www.globalpartnership.org/gpe-results/gender-equality-and-inclusion-education>
- Hassan Ja'ashan, M. M. N. (2015). Perceptions and attitudes towards blended learning for english courses: a case study of students at University of Bisha. *English Language Teaching*, 8(9). <https://doi.org/10.5539/elt.v8n9p40>
- ISU embracing the New Normal Education Landscape. (2021, June 5). Isabela State University. <https://isu.edu.ph/isu-embracing-the-new-normal-education-landscape/>
- Kamal, T., Khan, M. A., Hamad, Z., Illiyan, A., Das, A. K., & Alkhuraydili, A. (2023). Perception and Challenges of Virtual Classes with Gender Digital Divide amidst and Post-COVID-19 Pandemic in Iraq: An Empirical Analysis. *Education Research International*, 2023, 1–14. <https://doi.org/10.1155/2023/3665768>
- Kaur, P., Stoltzfus, J., & Yellapu, V. (2018). Descriptive statistics. *International Journal of Academic Medicine*, 4(1), 60. https://doi.org/10.4103/ijam.ijam_7_18
- Korlat, S., Kollmayer, M., Holzer, J., Lüftenegger, M., Pelikan, E. R., Schober, B., & Spiel, C. (2021). Gender Differences in digital learning during COVID-19: competence beliefs, intrinsic value, learning engagement, and perceived teacher support. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.637776>
- Lamery, C. C., Valera, J. S., & Limos-Galay, J. A. (2023). Impact of COVID-19 pandemic on learning in relation to students' adaptation to distance learning modalities, self-efficacy and academic achievement in Rizal National High School, Occidental Mindoro. *International Journal of Research Studies in Management*, 11(1). <https://doi.org/10.5861/ijrsm.2023.1008>
- Mahnun, N., Abdullah, H., Absor, M., Noviani, & Sohiron, S. (2022). The Effect of Gender toward Student Attitude on Using Interactive Multimedia IPAD. *Journal of Positive School Psychology*, 6(5), 7813–7821. <https://journalppw.com/index.php/jpsp/article/download/8856/5775/10215>

- Mailizar, M., Almanthari, A., Maulina, S., & Bruce, S. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: the case of indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7), em1860.
<https://doi.org/10.29333/ejmste/8240>
- Mumba, B., & Sultana-Muchindu, Y. (2024). Examining attitudes toward online learning classes amidst COVID-19 pandemic among students at the University of Lusaka. *SAGE Open*, 14(2). <https://doi.org/10.1177/21582440241236301>
- Nistor, N. (2013). Stability of attitudes and participation in online university courses: gender and location effects. *Computers & Education*, 68, 284–292.
- Okoye, K., & Hosseini, S. (2024). Mann-Whitney U Test and Kruskal-Wallis H Test Statistics in R. In *R Programming* (pp. 225–246). Springer Nature
Link. https://doi.org/10.1007/978-981-97-3385-9_11
- Philippine Institute for Development Studies. (2024, February). *COVID-19 school closures led to significant learning losses, says World Bank expert*. <https://www.pids.gov.ph/details/news/press-releases/covid-19-school-closures-led-to-significant-learning-losses-says-world-bank-expert>
- Resnik, D. B. (2018). The Ethics of Research with Human Subjects. In *International library of ethics, law, and the new medicine/The international library of ethics, law, and the new medicine*. <https://doi.org/10.1007/978-3-319-68756-8>
- Richardson, J. T., & Woodley, A. (2003). Another look at the role of age, gender and subject as predictors of academic attainment in higher education. *Studies in Higher Education*, 28(4), 475–493.
- Taherdoost, H. (2016). Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in a research. *International Journal of Academic Research in Management*, 5(3), 28-36.
- UNESCO. (2020). *Global Education Monitoring Report 2020: Gender Report: A new generation: 25 years of efforts for gender equality in education*.
<https://unesdoc.unesco.org/ark:/48223/pf0000374514>
- United Nations. (n.d.). Goal 5: Achieve gender equality and empower all women and girls. <http://un.org/sustainabledevelopment/gender-equality/#:~:text=Goal%205:%20Achieve%20gender%20equality%20and%20empower%20all%20women%20and%20girls&text=Gender%20equality%20is%20not%20only,peaceful%2C%20prosperous%20and%20sustainable%20world.>
- World Bank. (2018). *Missed Opportunities: The High Cost of Not Educating Girls*.
<https://www.worldbank.org/en/topic/education/publication/missed-opportunities-the-high-cost-of-not-educating-girls>
- Yu, Z. (2021). The effects of gender, educational level, and personality on online learning outcomes during the COVID-19 pandemic. *International Journal of Educational Technology in Higher Education*, 18(1).
<https://doi.org/10.1186/s41239-021-00252-3>