

Best Practices of Online Teaching Modality of Pre-Service Teachers

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ABSTRACT: In the fast-evolving landscape of online education, technology plays a pivotal role in reshaping the delivery of Physical Education and Health Education. This investigation assessed the online teaching modality of Bachelor in Physical & Health Education (BPHE) pre-service teachers. This quantitative study explores on the best practices during online teaching modality of BPHE pre-service teachers. A survey data was used to evaluate the best practices of 92 participants ages 19-22. A very high Utilization level of the respondents when grouped as to age ranges 19-22 years old. While Male and female also showed a very high utilization. The online technology commonly used by the BPHE pre-service teachers are canva, power point presentation, video, social media integration, and online resources and applications. No significant differences were revealed on the technology integration, engagement strategies, assessment and feedback when grouped as to age and sex. These findings contributing to a better understanding to the pre-service BPHE educational landscape. In response to these findings, a proposal was presented in enhancing effective Physical and Health education instructions through the online modality. This proposal outlines a comprehensive program aimed at addressing the unique needs of students and teachers in the virtual environment, emphasizing technology integration, engagement strategies, and assessment and feedback methods. This investigation provides beneficial awareness into the challenges and opportunities of online instruction, offering guidance for educators, policy makers, school administrators, and researchers in enhancing online teaching practices.

KEYWORDS: Best practices, engagement strategies, online teaching modality, technology integration

INTRODUCTION

Physical Education (PE) is an integral component of educational curricula specifically for the growth and physical development of the learners. It plays a pivotal role in fostering the holistic development of students (Jones & Brown, 2020, Chen, 2024). The COVID-19 pandemic has significantly transformed traditional teaching modalities, necessitating a swift transition to online instruction across various academic disciplines (Johnson, 2021). Physical Education, with its emphasis on experiential and practical learning, faced unique challenges during this shift (Brown & White, 2020). The present research seeks to explore the best practices on online teaching encountered by the BPHE pre-service teachers in delivering effective online instruction after the COVID-19 pandemic. Specifically, the study aims to identify strategies for engagement, assessment, student motivation, technology integration, and their impact on student outcomes (Garcia et al., 2022; Martinez, 2019). By delving into the stages of online PE instruction, this research contributes to the evolving discourse on adapting physical education to the demands of the digital age (Clark, 2021). Physical Education activities are commonly performed in face-to-face modality, where hands-on activities and interpersonal interactions are dominant, the change to online learning gave distinctive difficulties. The sudden shift forced educators to innovate and adapt swiftly to ensure the continuity and effectiveness of Physical Education instruction (Henderson, 2021). While several studies have explored the broader challenges of online education, there remains a noticeable gap in the literature concerning the specific intricacies of teaching physical education in a virtual environment (Wang 2020). This research seeks to address this gap by focusing on the experiences of BPHE pre-service teachers. Examining on the strategies they employed, the challenges they encountered, and the outcomes observed in terms of student engagement and achievement (Mitchell & Taylor, 2019; Turner, 2022). Through this investigation, the researcher seeks to discover evidence-based recommendations to enhance the quality of online PE instruction. This study further aims to bridge the gap by determining the significant difference in the challenges encountered by BPHE pre-service teachers in teaching online and recommend an enhancing activity in teaching Physical Education classes.

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REVIEW OF RELATED STUDIES

STATEMENT OF THE PROBLEM

Specifically, the present study sought answers to the following research questions:

1. What are the online teaching practices utilized by BPHE pre-service teachers when grouped as to age and sex?
2. What are the online teaching practices of BPHE pre-service teachers when categorized as to:
 - 2.1 technology integration;
 - 2.2 engagement strategies;
 - 2.3 assessment and feedback?
3. What are the challenges identified by the BPHE pre-service teachers in teaching online in terms of:
 - 3.1 technology integration;
 - 3.2 engagement strategies;
 - 3.3 assessment and feedback?
4. Is there a significant difference in the challenges of the BPHE pre-service teachers in teaching online when they are grouped in terms of:
 - 4.1 age;
 - 4.2 sex;
5. Is there a significant correlation on the age and sex of the BPHE Pre-Service Teachers in the Teaching Online when categorized as to technology interaction, engagement strategies , assessment and feedback?

METHODOLOGY

The research design employed for this study was quantitative in nature, utilizing structured surveys and statistical analyses. This approach involved the systematic collection and analysis of numerical data to identify patterns, relationships, and trends. Creswell (2014, and Leavy, 2022) contends that the main focus of the descriptive process of investigation is to determine an accurate representation and understanding of a specific phenomenon through the systematic presentation of the data. The primary objective of a narrative inquiry is to describe the nature of the present situation and to interpret the functional relationship between the variables involved.

A total of the 113 BPHE pre-service teachers are the respondents of the study enrolled during academic year 2025-2026. The respondents age range from 19-22 years old.

Table A

Respondents of the Study

Respondents	F
Age	
19 Years Old	15
20 Years Old	26
21 Years Old	24
22 Years Old	27
Total	92
Sex	
Male	24
Female	65
Prefer not to say	3
Total	92

Instruments

The instrument used was based from Bailey, C.J. (2008) Luo, Chen (2024) using Likert scale questionnaire as the primary instrument, comprising three parts. It can take 10-15 minutes for the respondents to answer the questionnaire. Part 1 captured demographic information about the respondents, providing a contextual understanding of the participants. Part 2 will look into the identification of best practices, while Part 3 will focus on the challenges faced by the BPHE pre-service teachers during online classes. Part 3 encompassed similar indicators, including engagement strategies, assessment and feedback.

Validity

Three (3) experts in the field of Physical and Health Education validated the instrument with a 4.73 average with an interpretation of very high validity.

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Reliability

To enhance the questionnaire's validity, a content validation phase was implemented. The questionnaire undergone reliability test to 20 Bachelor in Physical Education students from State University of Northern Negros respondents who are not included in the target participants. The reliability of the instrument was assessed using Cronbach's alpha, ensuring the consistency of responses. An excellent result was achieved at 0.91 alpha shows an excellent results.

Statistical Tools

Frequency Count, Percentage, Mean (Average), Rank, Standard Deviation, Kruskal-Wallis and PPM was used in the study.

To interpret the weighted mean derived from the Likert scale responses, the following arbitrary scale was employed.

Values	Range of Values	Description
1	1.00 – 1.74	Very Low Utilization
2	1.75 – 2.49	Low Utilization
3	2.50 – 3.24	High Utilization
4	3.25 – 4.00	Very High Utilization

Ethical Consideration

Participants were informed about the purpose, procedures, potential risks of the study, and the voluntary nature of their participation were fully explained to each participant prior to data collection, and they could withdraw from the study at any time without any reason. Voluntary participation was a core principle, with participants understanding that their decision to engage in the study or not would not impact their academic standing or any other relationship with the university. Privacy protection: Appropriate measures will be applied during data processing to ensure that the confidentiality and anonymity of participants' personal information and data will be protected. The form of presentation in any of the study results will not be reveal the personal identity of the participants. Conflicting Interests: The researcher do not have any financial or personal conflicts of interest that may affect the objectivity of the results in the course of this study. Copyright and Intellectual Property Rights: All materials used in this study (including but not limited to text, graphs, datasets, etc.) must be original or have been appropriately cited and acknowledged in the text. Compliance with laws and regulations: This study has followed the laws and regulations of the country/region in which it is conducted as well as international guidelines

FINDINGS

Table 1.1 presents a **Very High Utilization** of various online teaching practices by pre-service BPHE teachers when grouped as to age, offering insights into the mean scores and standard deviations (SD) associated with each practice. The mean score denotes the average level of utilization. In terms of technology integration, the analysis indicates a non-significant difference based on age (Smith & Martinez, 2019). This finding suggests that regardless of age, PE teachers exhibit similar levels of proficiency and comfort in incorporating technology into their instructional practices. Such uniformity underscores the importance of technological competence across different age groups of teachers, contributing to the seamless integration of digital tools into virtual PE environments. Finally, the analysis of assessment practices indicates significant differences based on age (Smith & Wilson, 2020). This implies that age-related factors influence how PE teachers design and implement assessments in virtual PE environments. Younger teachers may adopt innovative assessment methods, while older teachers may adhere to more traditional approaches, leading to disparities in assessment practices and methodologies.

Table 1.1 Online Teaching Practices Utilized By BPHE Pre-Service Teachers When Grouped As to Age

Age	N	Mean	SD	VI
19 years old	15	3.86	.35	VHU
20 years old	26	3.84	.54	VHU
21 years old	24	3.91	.28	VHU
22 years old	27	3.96	.19	VHU
Over all	92	3.90	.36	VHU

Legend: 1.00-1.74 Very Low Utilization 1.75-2.49 Low Utilization, 2.50-3.24 High Utilization 3.25-4.00 Very High Utilization

Table 1.2 presents a **Very High Utilization** on various online teaching practices by pre-service BPHE teachers when grouped as to sex. Wang & Wang (2023) emphasized that digitizing instructional materials is the foundation of a country's attempt to modernized its educational system. Zhang & Liu (2024) affirms that the introduction of intelligent technology made physical education classes more attractive to boys with 82.3% and 91.1% for girls. The real time feedback and progress tracking motivated them to train harder.

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Table 1.2 Online Teaching Practices Utilized By BPHE Pre-Service Teachers When Grouped As to Sex

Sex	N	Mean	SD	VI
Male	24	3.91	.28	VHU
Female	65	3.89	.40	VHU
Prefer Not To Say	3	4.00	.00	VHU
Over all	92	3.90	.36	VHU

Legend: 1.00-1.74 Very Low Utilization 1.75-2.49 Low Utilization, 2.50-3.24 High Utilization 3.25-4.00 Very High Utilization

Table 2.1 shows the various approaches utilized by BPHE Pre-service teachers to promote student engagement and interaction during online instruction. It explores the methods employed to create dynamic and interactive learning experiences that capture students' attention and foster collaboration. Technology can facilitate personalized learning plan and enhance technological competencies of learners Zhang & Liu (2024). The rank 1 used by the BPHE pre-service teachers was use of canva, followed by power point presentations, video lessons, social media integration as rank 4. Rank 16 was virtual Field Trips.

Table 2.1 Online Teaching Practices of BPHE Pre-Service Teachers When Categorized As To Technology Integration

Online Tools	N	%	Rank
Use of Canva	85	92.4	1
PowerPoint Presentations	84	91.3	2
Video Lessons	57	62	3
Social Media Integration	48	52.2	4
Online Resources and Apps	45	48.9	5
Live Virtual Classes	44	47.8	6
Interactive Quizzes and Games	41	44.6	7
Online Fitness Challenges	38	41.3	8
Discussion Forums	35	38	9
Educational Software	28	30.4	10
Digital Journals	17	18.5	11
Virtual Sports Tournaments	14	15.2	12
Interactive Whiteboards	9	9.8	13
Podcasts	7	7.6	14
Educational Robotics Kits	3	3.3	15
Virtual Field Trips	2	2.2	16

The findings presented in Table 2.2 provide valuable insights into the level of emphasis placed on engagement strategies among BPHE pre-service teachers, aligning with the literature on sustaining student involvement in virtual PE& HE classes. The highest mean score observed for varying teaching methods and approaches reflects a strong commitment among educators to employ diverse instructional techniques, consistent with research emphasizing the importance of interactive tools and innovative instructional approaches in creating dynamic virtual PE environments (Chen, Lou 2024, Smith and Brown, 2019). Verbal interpretation categorizes all practices as experiencing "High Utilization," indicating a widespread adoption of various engagement strategies among PE teachers. This aligns with the literature, which emphasizes the multifaceted nature of engagement strategies in virtual PE and underscores their importance in creating vibrant and participatory learning experiences (Huang and Chen, 2019; Jackson and Wilson, 2021). Virtual challenges and competitions, likewise gamification were High Engagement and the other 8 engagement strategies were Very High.

Table 2.2 Online Teaching Practices Of BPHE Pre-Service Teachers When Categorized As To Engagement Strategies

Interactive activities in all academic programs			
Individual or group virtual projects			
The course provides a real-world application of BPHE concepts			
The institution ensures that the technology used is appropriate to the nature and objectives of the program			
The Institution ensure the appropriate multimedia resources (videos, images) are used			
Peer interaction and collaboration			
Virtual challenges and competitions			

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Gamification elements			
Varying teaching methods and approaches			
10. Technology tools for virtual demonstrations			
Over all			

Legend: 1.00-1.74 Very Low Engagement 1.75-2.49 Low Engagement 2.50-3.24 High Engagement 3.25-4.00 Very High Engagement

Table 2.3 shows the online teaching practices in terms of assessment and feedback. It is crucial in evaluating student progress and providing effective guidance for improvement. This dimension encompasses various aspects, including regular assessments for physical activity levels, clear communication of assessment criteria, provision of constructive feedback, integration of peer assessment, utilization of technology tools for grading, individualized assessment tailored to student needs, virtual assessments targeting skill acquisition, personalized feedback for each student, use of self-assessment tools, and alignment of assessments with learning objectives. The findings reveal a high level of utilization across all components, indicating a robust approach to assessing student performance and providing feedback in online PE instruction. These practices contribute to creating an environment conducive to student learning. Zhang & Liu (2024) stressed that integrating technology in teaching physical education can enhance student motivation and participation. Furthermore, schools and educational institutions need to consider challenges such as equipment maintenance cost, teacher training and, technology updates.

Table 2.3 Online Teaching Practices of BPHE Pre-Service Teachers When Categorized as To Assessment and Feedback

	N	Mean	SD	VI
Regular assessments for BPHE program and course effectiveness	92	3.60	.67	VH
Clearly communicated assessment criteria	92	3.54	.79	VH
Constructive feedback on performance	92	3.53	.74	VH
Integration of peer assessment	92	3.54	.68	VH
5Technology tools for efficient grading	92	3.59	.71	VH
Individualized assessment considering student needs	92	3.50	.76	VH
Assessments and documentation of student achievement and skill acquisition	92	3.61	.69	VH
Personalized feedback for each student	92	3.50	.80	VH
Use of assessment in the summative and formative tasks	92	3.60	.66	VH
Access to evaluation and assessment data	92	3.58	.72	VH
Over all	92	3.56	.65	VH

Legend:1.00-1.74 Very Low 75-2.49 Low 2.50-3.24 High 3.25-4.00 Very High

Table 2.4 shows the summary of the online Teaching practices of the BPHE pre-service teachers. The literature on assessment and feedback in virtual Physical Education (PE) underscores the importance of innovative approaches tailored to the online learning environment (Johnson & Smith, 2023; Brown et al., 2019; Martinez et al., 2020; Garcia & White, 2021; Turner & Kim, 2019; Smith & Martinez, 2022; Taylor & Johnson, 2019). Alternative assessment methods, such as e-portfolios and video submissions, offer flexibility and encourage student reflection, fostering a deeper understanding of performance. Additionally, technological tools like wearable devices provide objective data for precise feedback on physical abilities. Useful feedback practices, including timely and personalized feedback delivered through audio and video formats, contribute significantly to student skill development and engagement (Garcia & White, 2021; Turner & Kim, 2019). Moreover, the incorporation of peer assessment not only promotes collaborative learning but also cultivates a sense of community and shared responsibility among students (Smith & Martinez, 2022). This section examined the challenges encountered by physical education (PE) teachers in delivering online instruction, exploring various dimensions including technology integration, student motivation, engagement strategies, student outcomes, and assessment and feedback. By examining these challenges, we gain valuable insights into the complexities of online PE teaching and opportunities for improvement.

Table 2.4 Summary of Online Teaching Practices of BPHE Pre-Service Teachers When Categorized As To Identified Variables

	N	Mean	SD	VI
Technology Integration	92	3.90	.36	VH
Engagement Strategies	92	3.46	.59	VH
Assessment and Feedback	92	3.56	.65	VH
Over all	92	3.64	.43	VH

Legend:1.00-1.74 Very Low 75-2.49 Low 2.50-3.24 High 3.25-4.00 Very High

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Table 3.1 shows technology integration into virtual Physical Education (PE) instruction has brought forth often a challenge for pre-service teachers. Among these challenges, technology barriers emerge as a pervasive obstacle, impacting the effective delivery of online Physical Education content and hindering the overall learning experience.

Studies by Smith and Johnson (2020) and Brown et al. (2021) have underscored various technology barriers faced by PE teachers. These include limited access to devices, inconsistent internet connectivity, varying levels of technological proficiency among students, and challenges related to accessing software and digital resources for online instruction. Inconsistent internet connectivity exacerbates the problem, especially in rural or underserved areas where stable internet connections may be scarce. Students with unreliable internet access may experience disruptions during virtual classes, leading to frustration and hindered learning experiences. Moreover, PE teachers must navigate the diverse technological skills and competencies among their students. While some students may be adept at using digital tools and platforms, others may struggle with basic technological tasks, such as accessing online resources or navigating virtual learning environments.

Table 3.1 The Challenges Identified by the BPHE Pre-Service Teachers In Teaching Online In Terms Of Technology Integration

	Mean	SD	VI
1. Technical difficulties hindering seamless online class delivery.			
2. Limited access to suitable technology tools for virtual demonstrations.			
3. Challenges in addressing students' technical issues during virtual classes.			
4. Difficulty in utilizing multimedia resources effectively.			
5. Limited professional development opportunities for technology integration.			
6. Challenges in adapting traditional PE activities to fit an online format.			
7. Issues with user-friendliness and accessibility of online platforms/tools.			
8. Difficulty in fostering student-teacher interaction through virtual means.			OAC
9. Limited resources for addressing technical challenges in real-time.			
10. Technical difficulties hindering seamless online class delivery.			
Over all			

Legend: 1.00-1.74 Never A Challenge 1.75-2.49 Sometimes A Challenge 2.50-3.24 Often A Challenge 3.25-4.00 Very Often A Challenge

Table 3.2 outlines the challenges encountered by BPHE pre-service teachers concerning engagement strategies in online teaching. The highest mean score, indicating the most challenging aspect, is attributed to "Challenges in maintaining student engagement during online activities." Furthermore, the challenges encountered by pre-service teachers encountered regarding student outcomes in online teaching. These findings are drawn from existing literature on the subject matter. "Difficulty in Defining and Communicating Clear Learning Outcomes" emerges as the most formidable challenge, highlighting the complexities associated with articulating and conveying learning objectives effectively in the online Physical Education environment. Results also offers a comprehensive overview of the challenges identified by PE teachers in the realm of online teaching, as depicted in the literature. The lowest mean score, attributed to "Engagement Strategies," suggests that PE teachers perceive this aspect as relatively less challenging compared to other domains. However, the accompanying standard deviation indicates some variability in responses, implying that while engagement strategies may pose fewer challenges on average, individual experiences may vary (Garcia & Martinez, 2019).

Table 3.2 The Challenges Identified by the BPHE Pre-Service Teachers In Teaching Online In Terms Of Engagement Strategies

	Mean	SD	VI
Difficulty fostering student interaction in the virtual environment.			
Challenges in maintaining student engagement during online activities.			
Limited opportunities for peer collaboration and group activities.			
Difficulty adapting hands-on activities to the online setting.			
Technical issues hindering the effectiveness of engagement strategies.			
Limited tools or resources for creating interactive online content.			
Student disengagement due to the absence of face-to-face interaction.			
Difficulty gauging student participation in virtual BPHE classes.			
Challenges in promoting active involvement in online discussions.			
Difficulty fostering student interaction in the virtual environment.			
Over all			

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Legend:1.00-1.74 Never A Challenge 1.75-2.49 Sometimes A Challenge 2.50-3.24 Often A Challenge 3.25-4.00 Very Often A Challenge

Table 3.3 shows the challenges confronted by the pre-service teachers regarding assessment and feedback in online teaching, as identified in relevant literature. The challenge with the highest mean score, "Difficulty in Assessing Students' Physical Activity Levels Remotely," underscores the complexities associated with evaluating students' physical activities in virtual settings, considering the limitations of remote monitoring and assessment methods (Turner & Wilson, 2020). The standard deviations associated with these challenges indicate some variability in responses among PE teachers. However, despite these variations, all challenges are consistently categorized as "Highly Challenging," emphasizing the pervasive nature of the obstacles encountered by PE teachers in implementing effective assessment and feedback strategies online (Brown & Garcia, 2022). Over-all results shows Assessment and feedback is sometimes a challenge while issues in technology hindering efficient online assessments and Adapting traditional assessment methods to the online learning environment are often a challenge to pre-service teachers.

Table 3.3 The Challenges Identified by the BPHE Pre-Service Teachers In Teaching Online In Terms Of Assessment And Feedback

	Mean	SD	VI
Difficulty in documenting physical activity remotely.			
Challenges in providing timely and constructive feedback on content, instruction and delivery technology.			
Issues with technology hindering efficient online assessments.			
Adapting traditional assessment methods to the online learning environment.			
Limited tools for assessing skill acquisition in virtual settings.			
Difficulty to access evaluation and assessment data online.			
Difficulty in integrating peer assessment into virtual evaluations.			
Student challenges in understanding and meeting assessment criteria.			
Issues with self-assessment tools and student reflections.			
10. Difficulty in encoding physical activities remotely.			
Over all			

Legend:1.00-1.74 Never A Challenge 1.75-2.49 Sometimes A Challenge 2.50-3.24 Often A Challenge 3.25-4.00 Very Often A Challenge

Table 3.4 shows the summary of their identified challenges experienced by the BPHE Pre-service teachers. Over-all results shows often a challenge.

3.4 Summary of The Challenges Identified by The BPHE Pre-Service Teachers in Teaching Online in Terms of the Identified Variables

	Mean	SD	VI
Technology Integration	2.73	.76	OAC
Engagement Strategies;	2.64	.73	OAC
Assessment And Feedback	2.42	.78	SAC
Over all	2.60	.70	OAC

Legend:1.00-1.74 Never A Challenge 1.75-2.49 Sometimes A Challenge 2.50-3.24 Often A Challenge 3.25-4.00 Very Often A Challenge

Table 4.1 presents the differences in challenges faced by by the BPHE pre-service teaching online teaching concerning age groups, with corresponding statistical analyses. All three variables showed no significant differences when group as to age when taken as a w. hole with a P value of 0.72. Xu, Y., et al. (2025) states that students' self-perception has been explored as preparedness of student for online classes. Self-regulated learning or self-directed learning are concepts that helped students to complete their assigned work. Technical competencies reflect students' computer skills, internet skills, and information-seeking skills refer to the abilities and confidence to connect and communicate is a self-directed learning. In terms of technology integration, the analysis indicates a non-significant difference based on age (Smith & Martinez, 2019). This finding suggests that regardless of age, BPHE pre-service teachers exhibit similar levels of proficiency and comfort in incorporating technology into their instructional practices. Lou Chen (2024) study revealed that engagement strategies of students have no significant difference on age. Furthermore, her study highlights

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significant age-related disparities in challenges related to technology integration and student outcomes, while other areas such as student motivation, engagement strategies, and assessment show no significant differences across age groups.

Table 4.1 Difference In the Challenges of The BPHE Pre-Service Teachers In Teaching Online When Grouped as to Age

Variables		Sum of Squares	Mean Square	F Value	P Value	Decision	Verbal Interpretation
Technology Integration	Between Groups	1.32	51.42	0.75	0.52	Accept Ho	Not Significant
	Within Groups	51.42	0.58				
Engagement Strategies	Between Groups	1.03	0.34	0.62	0.60	Accept Ho	Not Significant
	Within Groups	48.55	0.55				
Assessment & Feedback	Between Groups	55.31	0.19	0.30	0.82	Accept Ho	Not Significant
	Within Groups	55.88	0.62				
WHOLE	Between Groups	0.66	0.19	0.44	0.72	Accept Ho	Not Significant
	Within Group	44.20	0.62				

>.05 alpha

Table 4.2 presents the differences in challenges faced by by the BPHE pre-service teaching online teaching concerning age groups, with corresponding statistical analyses. All three variable shows no significant differences when group as to age when taken as a whole with a P value of 0.80 not significant. In terms of Technology Integration, no significant difference was observed between group as to sex of PE pre-service teachers with 0.28 p values. Engagement Strategies, Assessment and feedback are not significant based from the p value of .90 and 0.77 respectively. Lou Chen (2024) emphasized that teaching uniformity underscores the importance of technological competence across different age groups of teachers, contributing to the seamless integration of digital tools into virtual PE environments. Younger teachers may adopt innovative assessment methods, while older teachers may adhere to more traditional approaches, leading to disparities in assessment practices and methodologies. These findings underscore the importance of recognizing age-related differences when designing and implementing online teaching practices in physical education, emphasizing the need for tailored professional development programs and support initiatives to address diverse instructional needs across different age demographics. Smith & Martinez, (2019) revealed a significant difference between male and female PE teachers concerning "Technology Integration." Male teachers reported higher mean scores compared to female teachers, indicating potentially greater challenges faced by female educators in integrating technology into online teaching practices. Turner, R (2022) revealed that gender plays a significant role in the obstacles encountered by PE teachers regarding technology integration in online instruction. Likewise, significant differences were observed in "Engagement Strategies" between male and female PE teachers. Male teachers reported higher mean scores compared to female teachers, indicating potential gender-related variations in the utilization of engagement strategies in online PE instruction. This underscores the role of gender in shaping the challenges associated with promoting student engagement in virtual learning settings.

Table 4.2 Difference In the Challenges of The BPHE Pre-Service Teachers In Teaching Online When Grouped as to Sex

Variables		Sum of Squares	Mean Square	F Value	P Value	Decision	Verbal Interpretation
Technology Integration	Between Groups	1.48	52.26	1.25	0.28	Accept Ho	Not Significant
	Within Groups	51.26	0.57				
Engagement Strategies	Between Groups	0.11	0.05	0.09	0.90	Accept Ho	Not Significant
	Within Groups	49.47	0.15				
Assessment & Feedback	Between Groups	55.57	0.15	0.25	0.77	Accept Ho	Not Significant
	Within Groups	55.88	0.62				
WHOLE	Between Groups	0.21	0.10	0.21	0.80	Accept Ho	Not Significant
	Within Group	44.65	0.50				

Table 5 shows the correlation of of age and sex on the challenges encountered by the BPHE pre- service teachers in Teaching Online with technology interaction, engagement strategies, assessment and feedback. In all areas, **no significant relationships** were revealed.

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5. The correlation of age and sex in the Challenges encountered by The BPHE Pre-Service Teachers in Teaching Online with technology interaction, engagement strategies, assessment and feedback

Variables		N	Correlation Coefficient	Sig. (2-tailed)	Decision	Verbal Interpretation
Technology Integration	Sex	92	0.03	0.71	Accept Ho	Not Significant
	Age	92	0.14	0.16		
Engagement Strategies	Sex	92	0.00	0.93	Accept Ho	Not Significant
	Age	92	0.10	0.30		
Assessment & Feedback	Sex	92	0.04	0.64	Accept Ho	Not Significant
	Age	92	0.03	0.74		
WHOLE	Sex	92	0.01	0.87	Accept Ho	Not Significant
	Age	92	0.11	0.28		

CONCLUSIONS

Based on the findings, the following conclusions were derived:

The online teaching practices of the BPHE pre-service teachers when grouped as to age and sex was very high utilization.

The online teaching practices of BPHE pre-service teachers when categorized as to technology integration, engagement strategies, and assessment and feedback was very high

What are the challenges identified by the BPHE pre-service teachers in teaching online in terms of technology integration, engagement strategies were often a challenge and assessment and feedback sometimes a challenge.

No significant differences were revealed in the challenges encountered by the BPHE pre-service teachers in teaching online when they are grouped as to technology integration, engagement strategies, and assessment and feedback in terms of age and sex.

RECOMMENDATIONS

Based on the summary of findings and conclusions, the following recommendations are drawn:

Students. The outcomes of this study have the potential to positively impact students by contributing to the development of engaging and effective online PE classes. By addressing the challenges identified in this research, educators can create dynamic learning experiences that promote student engagement, motivation, and success in physical education, even in virtual settings.

Teachers/ Educators. Teacher educators can leverage the findings of this study to inform pre-service and in-service training programs for future and current PE teachers. By integrating evidence-based strategies and technology-enhanced teaching methods into training curricula, educator preparation programs can better equip teachers to meet the demands of online instruction and support student learning effectively.

Policy makers in Education. Policymakers can use the research findings to inform policies and initiatives aimed at promoting the integration of technology in physical education curricula. By advocating for policies that prioritize digital literacy and provide support for online teaching practices, policymakers can ensure that PE educators have the necessary resources and support to deliver high-quality instruction in virtual environments.

The Researcher. The researcher can use the findings of this study to inform their own practice and contribute to ongoing dialogue within the research community. By reflecting on the implications of the research findings and engaging with stakeholders, the researcher can further refine their work and make meaningful contributions to the field of online PE instruction.

Future Researchers. Future researchers can build upon the findings of this study to deepen understanding and address gaps in knowledge related to online PE instruction. By exploring new methodologies, technologies, and approaches to teaching and learning, researchers can continue to advance the field and contribute to the development of effective online PE instruction practices.

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