Physical Education in a Virtual Setting: Challenges Faced by Quezon City University Students amidst the pandemic

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Abstract

The primary purpose of this study is to identify the issues associated with online Physical Education classes at Quezon City University (Q.C.U) during the Academic Year 2021 - 2022 and to provide strategies for managing future online physical education programs efficiently. Descriptive approach in research was employed. The researcher-survey questionnaire served as the research instrument to identify challenges faced by the P.E teachers and students in QCU. A total of three hundred forty-eight (348) students and ten (10) PE teachers participated in this study. Collected responses were tabulated, summarized, treated with statistical tools using IBM SPSS Statistics 22, and presented by the researcher. Findings demonstrate the importance of considering the limitations of the virtual environment and making necessary adjustments to facilitate effective virtual physical education classes. The results highlight the significance of regular communication, clear instructions, and ongoing support to keep students engaged and motivated. Creating a supportive and inclusive virtual environment is crucial for encouraging active participation and interaction among students. By utilizing various strategies, teachers can ensure that student and teacher interaction remains central, enhancing the overall learning experience.

Keywords: Physical Education, Virtual Learning Environment, Teaching in Virtual Setting, Challenges in Online Learning,

Introduction

The COVID-19 pandemic has forced educational institutions worldwide to shift to virtual learning, including physical education (Nanda & Ryan, 2023). While this transition has allowed universities to continue offering classes remotely, it has also presented numerous challenges for students pursuing physical education courses. One of the primary challenges for university students in virtual physical education is the limited access to resources (Bhuwandeep et al., 2023). Many students do not have access to well-equipped home gyms or sports facilities (Lambert et al., 2023), making it difficult to replicate the hands-on experience provided in traditional settings (Sultanto et al., 2023). Lack of proper exercise equipment and space may hamper the ability to engage in certain activities or limit the range of exercises they can perform (Ardiansyah & Setiawan, 2023).

In a virtual setting, students may face decreased motivation and accountability compared to in- person physical education classes according to Johnson et al (2023). The absence of face-to-face interaction with instructors and peers can result in reduced motivation to actively participate and complete physical activities (Marín-Suelves et al., 2023). Moreover, the lack of immediate feedback and the temptation of distractions at home may make it challenging for students to maintain consistent engagement (Temel et al., 2023).

Furthermore, physical education classes typically provide opportunities for social interaction, teamwork, and the development of important interpersonal skills (Sinag, 2023). However, in virtual settings, students often miss out on these aspects. Collaborative activities and team sports may be challenging to replicate, which can impact the overall learning experience and social development of students (Ferreira Silva et al., 2023). In addition, physical education instructors play a crucial role in ensuring the safety of students during exercise and physical activities (Camarador & Camarador, 2023). In a virtual setting, according to Ferreira et al (2023) it becomes difficult for instructors to assess students' movements, techniques, and potential risks. Students may lack immediate guidance and supervision, increasing the potential for injuries (Ferreira et al., 2023). It is vital to address safety concerns and provide clear guidelines to minimize the risks associated with physical activities performed remotely (Mendes et al., 2023).

Studies shows that physical education courses typically involve practical assessments to evaluate students' skills and progress. In a virtual setting, it can be challenging to assess students' performance accurately (Sánchez et al., 2023; Tounsi et al., 2023; Burhaein et al., 2022; Moustakas & Robrade, 2022). Traditional assessment methods, such as in-person demonstrations or practical examinations, may not be feasible (Foye & Grenier, 2022). Instead, alternative assessment methods like video submissions, self-evaluations, or online quizzes may be employed, but they may not capture the full range of students' abilities (O'Brien, 2022). In addition, physical education instructors can modify activities and exercises to suit the limited space and resources available to students at home. They can provide alternative exercises or recommend household items that can be used as makeshift equipment. This approach allows students to participate and engage in physical activities regardless of their environment (Peñas, 2022).

Studies suggests that instructors may incorporate virtual platforms for students to interact and collaborate, promoting social connections and teamwork (Foye & Grenier, 2022; Ferreira et al., 2023). Group assignments, online forums, and virtual workout sessions can help foster a sense of community and peer support, enhancing motivation and accountability among students (O'Brien, 2022). Moreover, maintaining regular communication channels between instructors and students is crucial (Peñas, 2022). Studies suggests that instructors should provide timely feedback, support, and encouragement to keep students motivated and engaged. Clear expectations and guidelines can help students understand their responsibilities and ensure their safety during remote physical activities (Peñas, 2022).

Studies revealed that incorporating technology tools such as video demonstrations, fitness tracking apps, and wearable devices can enhance the virtual learning experience of students in PE class in a virtual setting. Students can use video recordings to receive personalized feedback from instructors, monitor their progress, and set goals for self-improvement (Bhuwandeep et al., 2023; Lambert et al., 2023; Sultanto et al., 2023).

Recent studies highlighted that developing alternative assessment methods that evaluate various aspects of physical education is essential. Combining self-assessments,

video submissions, written reflections, and online quizzes can provide a more comprehensive understanding of students' knowledge and skills (Sinag, 2023; Ferreira Silva et al., 2023; Camarador & Camarador, 2023; Ferreira et al., 2023).

While virtual physical education presents significant challenges for university students during the pandemic, educators can employ strategies to overcome these hurdles. Studies suggests that by adapting activities to the home environment, fostering virtual peer interaction, providing regular feedback, integrating technology, and implementing comprehensive assessment methods, students can continue to engage in physical education and maintain their well-being even in a virtual setting.

Ongoing exploration and implementation of innovative approaches pave the way for a more effective and inclusive virtual physical education experience. Thus, the primary purpose of this study is to identify the issues associated with online Physical Education classes at Quezon City University (Q.C.U) during the Academic Year 2021 - 2022 and to provide strategies for managing future online physical education programs efficiently. The findings may serve as a foundation for future efforts to revive online physical education sessions. Specifically, this study aims to answer the following research questions:

How do the Physical Education teachers and students in Quezon City University describe the physical education class in a virtual environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills?

Is there any difference in the response made by Physical Education teachers and students in Quezon City University towards the physical education class in a virtual environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills?

What are the challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of Instruction and Learning, Teaching Methodology and Strategies, and Assessment?

Based on the results, what interventions or strategies may be developed to improve physical education teaching and learning in a virtual learning environment?

The study hypothesizes that there is no significant difference in the response made by Physical Education teachers and students in Quezon City University towards the physical education class in a virtual environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills.

Primarily, this study will help to improve the physical education teaching and learning in the country, most especially in an online learning environment and during the time of natural disasters and calamities. The results of this study will provide an insight for P.E teachers to develop their own strategies that will address the present challenges in teaching P.E subjects in a virtual learning space to improve the teaching and learning of P.E in general.

Methodology

The study used the descriptive approach in research to survey challenges faced by the Quezon City University Physical Education teachers and students in a virtual learning environment during the Academic Year 2021 - 2022. The researcher developed a survey questionnaire which served as the research instrument to identify challenges faced by the P.E teachers and students in QCU. After the development of the survey questionnaire, the researcher sought the approval of the Dean of the College of Education in Quezon City University to conduct the survey.

The general population of the study refers to all freshmen students of Quezon City University who were officially enrolled in the subject Physical Education 1 (P.E 1) during the conduct of this study.

There were about two thousand six hundred thirty-two (2,632) freshmen college students enrolled in P.E 1 during the conduct of this study. And from the total population, the researcher calculated the sample size to be used in this study using the Raosoft Sample Size Calculator (http://www.raosoft.com/samplesize.html) with a margin of error of 5%, 95% confidence level, and 50% response distribution. The total sample size is three hundred forty-eight (348). To obtain the total sample size, the researcher used convenience sampling technique. Respondents includes one hundred seventy-five

females (175) and one hundred seventy-three (173) males. Seventy-nine (79) of the respondents are taking Bachelor of Science in Accountancy (BSA), sixty-one (61) are taking Bachelor of Science in Industrial Engineering (BSIE), eighty-four (84) are taking Bachelor of Science in Information Technology, fifty-nine (59) are taking Bachelor of Science in Electronics Engineering (BSEE), and sixty-seven (67) Bachelor of Science in Entrepreneurship (BSEntrep).

Meanwhile, the teacher respondents of this study include all the Physical Education teachers in Quezon City University. The researcher used a purposive sampling technique to obtain the number of teacher respondents with the following criteria: (1) He/she is currently teaching at Quezon City University; and (2) Handling Physical Education Classes in a Virtual Learning Environment. A total of ten (10) PE teachers participated in this study.

The researcher sent an informed consent form to the target respondents and after they completed the informed consent form, the link to the survey questionnaire were given to them. Collected responses were tabulated, summarized, treated with statistical tools using IBM SPSS Statistics 22, and presented by the researcher.

Result and Discussions

The study's primary goal is to identify the problems with Quezon City University's (Q.C.U.) online physical education courses during the academic year 2021–2022 and to offer solutions for effectively administering such programs in the future. The following subsections contain a presentation of the survey's findings.

Physical Education class in a virtual environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills

Teaching Methods and Strategies

Teaching methods and strategies in an online learning environment require adapting traditional instructional approaches to the digital realm. Studies suggest that effective online teaching involves creating a supportive and engaging virtual learning environment that encourages active participation, collaboration, and independent learning. In addition, flexibility, clear communication, and technological proficiency are crucial for successful online instruction.

Table 1 shows the responses made by Physical Education teachers and students in Quezon City University towards physical education class in a virtual environment in terms of Teaching Methods and Strategies.

Table 1

Practices	Teachers			Students			Over-all		
	X	SD	VI	X	SD	VI	X	SD	VI
1. Use pre-recorded videos or live demonstrations to showcase various exercises, movements, and skills.	4.20	0.79	AO	3.60	1.10	O	**3.90**	**1.10**	**O**
2. Utilize interactive online platforms and tools that allow students to actively engage in PE activities.	3.80	0.92	O	3.60	1.12	O	**3.70**	**1.11**	**O**
3. Adapt traditional PE activities and exercises to suit the virtual environment.	3.70	0.95	O	3.51	1.10	O	**3.61**	**1.09**	**O**
4. Encourage students to set personal fitness goals and track their progress.	3.90	0.99	O	3.48	1.13	O	**3.69**	**1.13**	**O**
5. Develop virtual fitness assessments that can be conducted remotely.	4.40	0.70	AO	3.53	1.12	O	**3.96**	**1.12**	**O**
6. Facilitate peer collaboration and feedback through virtual platforms.	4.10	0.74	O	3.53	1.12	O	**3.82**	**1.12**	**O**
7. Include virtual discussions on topics related to health, nutrition, mental well-being, and the benefits of physical activity.	3.90	0.88	O	3.51	1.13	O	**3.71**	**1.12**	**O**
8. Cater to the diverse needs of students by incorporating adaptive physical education strategies.	4.40	0.70	AO	3.51	1.13	O	**3.96**	**1.13**	**O**
9. Assign home-based PE projects that allow students to explore physical activities in their immediate environment.	4.10	0.74	O	3.47	1.10	O	**3.79**	**1.09**	**O**
10. Engage parents or guardians in supporting and encouraging students' participation in virtual PE.	3.90	0.88	O	3.60	1.14	O	**3.75**	**1.14**	**O**
Over-all	**4.04**	**0.83**	**O**	**3.54**	**1.12**	**O**	3.79	1.11	O

Legend. *Verbal Interpretation*	*Symbol*	*Range*
Always Observed	AO	4.20 – 5.00
Observed	O	3.40 – 4.19
Moderately Observed	MO	2.60 – 3.39
Somewhat Observed	SO	1.80 – 2.59
Not Observed	NO	1.00 – 1.79

Respondents describe that the given practices pertain to teaching methods and strategies in a Physical Education class are "Observed" in a virtual learning environment with computed over-all value of 3.79 (SD=1.11). It was supported by the group response of teachers which is 4.04 (SD=0.83) and students which is 3.54 (SD=1.12) and interpreted as "Observed".

Particularly, respondents agreed that in Physical Education class in a virtual learning environment they observed that the develop virtual fitness assessments is possibly conducted remotely (M=3.96, SD=1.12), and the virtual learning environment cater to the diverse needs of students by incorporating adaptive physical education strategies (M=3.96, SD=1.13). In addition, the respondents "Observed" the use of pre-recorded videos or live demonstrations in a virtual learning environment to showcase various

exercises, movements, and skills (M=3.90, SD=1.10) and the virtual platforms can facilitate peer collaboration and feedback (M=3.82, SD=1.12). Also, respondents observed that in a virtual learning environment it is possible to assign home-based PE projects that allow students to explore physical activities in their immediate environment (M=3.79, SD=1.09).

Results also revealed that respondents "Observed" that in a virtual learning environment, it is possible to engage parents or guardians in supporting and encouraging students' participation in virtual PE (M=3.75, SD=1.14) and the inclusion of virtual discussions on topics related to health, nutrition, mental well-being, and the benefits of physical activity (M=3.71, SD=1.12). Furthermore, it can be gleaned from the table that respondents agreed that in a virtual learning environment they "Observed" the use of interactive online platforms and tools that allow students to actively engage in PE activities (M=3.70, SD=1.11) and even in a virtual learning environment it is possible to encourage students to set personal fitness goals and track their progress (M=3.69, SD=1.13). Lastly, respondents agreed that they both "Observed" that it is possible to adapt traditional PE activities and exercises in a virtual learning environment (M=3.61, SD=1.09).

Results revealed that it is important to consider the limitations of the virtual environment and make adjustments as needed. Regular communication, clear instructions, and ongoing support are essential to help students stay engaged and motivated throughout the virtual PE class.

Student and Teacher Interaction

Student-teacher interaction in a virtual learning environment is a critical aspect of online education. While physical presence is absent, fostering meaningful and effective interaction is still possible. Table 2 shows the responses made by Physical Education teachers and students in Quezon City University towards physical education class in a virtual environment in terms of Student and Teacher Interaction.

Table 2

Physical Education class in a virtual environment in terms of Student and Teacher Interaction

Practices	Teachers			Students			Over-all		
	X	SD	VI	X	SD	VI	X	SD	VI
1. Utilize video conferencing platforms to conduct live PE classes where students and teachers can see and interact with each other in real-time.	2.90	0.88	MO	2.99	0.84	MO	**2.94**	**0.84**	**MO**
2. Set up discussion forums or chat features within your virtual learning platform where students can ask questions, share experiences, and interact with the teacher and their peers.	2.60	0.84	MO	3.07	0.82	MO	**2.83**	**0.82**	**MO**
3. Schedule individual check-in sessions with students to provide personalized feedback, answer questions, and address concerns.	2.50	0.71	SO	3.05	0.80	MO	**2.78**	**0.81**	**MO**
4. Incorporate group activities that encourage students to work together virtually.	2.90	0.57	MO	2.97	0.82	MO	**2.93**	**0.81**	**MO**
5. Designate specific times for virtual office hours where students can drop in and have direct conversations with the teacher.	3.50	0.71	O	2.99	0.82	MO	**3.24**	**0.83**	**MO**
6. Use interactive polling or survey tools to gather student opinions, preferences, or feedback on various aspects of the virtual PE class.	2.80	0.79	MO	3.05	0.81	MO	**2.93**	**0.81**	**MO**

7. Conduct virtual demonstrations of exercises, movements, or skills and provide immediate feedback to students.	2.80	0.92	MO	3.05	0.82	MO	**2.93**	**0.82**	**MO**
8. Foster peer assessment and feedback by assigning students to provide constructive feedback to their peers' performances or exercise routines.	2.50	0.71	SO	2.99	0.82	MO	**2.74**	**0.82**	**MO**
9. Encourage active listening and engagement during virtual PE classes.	2.90	0.74	MO	2.99	0.83	MO	**2.94**	**0.83**	**MO**
10. Organize virtual social events or extracurricular activities related to PE, such as virtual fitness challenges, virtual sports competitions, or virtual dance parties.	2.60	0.70	MO	2.95	0.83	MO	**2.78**	**0.83**	**MO**
Over-all	**2.80**	**0.78**	**MO**	**3.01**	**0.82**	**MO**	**2.90**	**0.82**	**MO**

Data revealed that the given practices in terms of student and teacher interaction in a Physical Education class held in a virtual learning environment are “Moderately Observed” as depict by the computed over-all mean response of 2.90 (SD=0.82). Teachers agreed that they “Moderately Observed” the given practices with computed over-all mean of 2.80 (SD=0.78) as well as the group of students with computed over-all mean value of 3.01 (SD=0.82).

It can be gleaned from the table that the two groups of respondents agreed that designating specific times for virtual office hours where students can drop in and have direct conversations with the teacher (M=3.24, SD=0.83), utilizing video conferencing platforms to conduct live PE classes where students and teachers can see and interact with each other in real-time (M=2.94, SD=0.84), encouraging active listening and engagement during virtual PE classes (M=2.94, SD=0.83), incorporating group activities that encourage students to work together virtually (M=2.93, SD=0.81), and using interactive

polling or survey tools to gather student opinions, preferences, or feedback on various aspects of the virtual PE class (M=2.93, SD=0.81) are “Moderately Observed” in Physical Education class held in a virtual learning environment.

Furthermore, conducting virtual demonstrations of exercises, movements, or skills and provide immediate feedback to students (M=2.93, SD=0.82), setting up a discussion forums or chat features within your virtual learning platform where students can ask questions, share experiences, and interact with the teacher and their peers (M=2.83, SD=0.82), scheduling individual check-in sessions with students to provide personalized feedback, answer questions, and address concerns (M=2.78, SD=0.81), organizing virtual social events or extracurricular activities related to PE, such as virtual fitness challenges, virtual sports competitions, or virtual dance parties (M=2.78, SD=0.83), and fostering peer assessment and feedback by assigning students to provide constructive feedback to their peers' performances or exercise routines (M=2.74, SD=0.82) are “Moderately Observed” in Physical Education class held in a virtual learning environment according to the two groups of respondents.

It is important for teachers to create a supportive and inclusive virtual environment that encourages active participation and interaction among students. By utilizing a variety of strategies, teachers can ensure that student and teacher interaction remains a central aspect of the virtual PE class, enhancing the overall learning experience.

Class Participation

Class participation in a virtual learning environment can be encouraged and facilitated through various strategies. Table 3 shows the responses made by Physical Education teachers and students in Quezon City University towards physical education class in a virtual environment in terms of Class Participation.

Table 3

Physical Education class in a virtual environment in terms of Class Participation

Practices	Teachers			Students			Over-all		
	X	SD	VI	X	SD	VI	X	SD	VI
1. Set clear expectations for class participation and communicate them to students at the beginning of the course.	2.90	0.88	MO	2.97	0.83	MO	**2.93**	**0.83**	**MO**
2. Start each class with icebreaker activities or warm-up exercises that allow students to interact with each other and create a positive and inclusive virtual environment.	3.00	0.82	MO	2.93	0.79	MO	**2.96**	**0.79**	**MO**
3. Ask open-ended questions throughout the class to encourage students to think critically and actively participate.	3.20	0.92	MO	2.97	0.81	MO	**3.09**	**0.81**	**MO**
4. Divide students into small groups using breakout rooms in the virtual platform. Assign specific topics or tasks for group discussions related to the lesson.	3.00	0.94	MO	2.97	0.83	MO	**2.99**	**0.83**	**MO**
5. Utilize visual aids, interactive presentations, and videos to make the virtual PE class more engaging.	2.30	0.48	SO	3.08	0.82	MO	**2.69**	**0.83**	**MO**
6. Incorporate a variety of activities and exercises that cater to different learning styles and preferences.	3.20	0.92	MO	3.06	0.84	MO	**3.13**	**0.84**	**MO**
7. Encourage students to provide feedback and evaluation to their peers' performances or exercises.	3.00	0.94	MO	2.96	0.82	MO	**2.98**	**0.82**	**MO**
8. Encourage students to set personalized goals related to their physical fitness or skill development.	3.10	0.74	MO	3.06	0.83	MO	**3.08**	**0.83**	**MO**
9. Allocate time for students to reflect on their experiences, share their insights, and discuss the challenges they face in the virtual PE class.	2.70	0.82	MO	3.03	0.81	MO	**2.86**	**0.81**	**MO**
10. Recognize and celebrate students' achievements, both big and small.	2.60	0.84	MO	3.01	0.85	MO	**2.80**	**0.85**	**MO**
Over-all	**2.90**	**0.85**	**MO**	**3.00**	**0.82**	**MO**	2.95	0.82	MO

Data revealed that respondents agreed that they “Moderately Observed” all the given practices in Physical Education class that is held in a virtual learning environment with computed over-all mean value of 2.95 (SD=0.82).

Particularly, respondents claimed that they “Moderately Observed” the incorporation of variety of activities and exercises that cater to different learning styles and preferences (M=3.13, SD=0.84), asking open-ended questions throughout the class to encourage students to think critically and actively participate (M=3.09, SD=0.81), encouraging students to set personalized goals related to their physical fitness or skill development (M=3.08, SD=0.83), dividing students into small groups using breakout rooms in the virtual platform. Assign specific topics or tasks for group discussions related to the lesson (M=2.99, SD=0.83), and encouraging students to provide feedback and evaluation to their peers' performances or exercises (M=2.98, SD=0.82) in P.E class that is held in a virtual learning environment during the onset of the pandemic.

Furthermore, it can be gleaned from the table that respondents agreed that they both “Moderately Observe” the incorporation of icebreaker activities or warm-up exercises before the start of each class that allow students to interact with each other and create a positive and inclusive virtual environment (M=2.96, SD=0.79), setting clear expectations for class participation and communicate them to students at the beginning of the course (M=2.93, SD=0.83), allocating time for students to reflect on their experiences, share their insights, and discuss the challenges they face in the virtual PE class (M=2.86, SD=0.81), recognizing and celebrating students' achievements, both big and small (M=2.80, SD=0.85), and utilizing visual aids, interactive presentations, and videos to make the virtual PE class more engaging (M=2.69, SD=0.83) in a P.E class held

in a virtual learning environment during the height of pandemic.

Results emphasize to create a positive and supportive virtual environment where all students feel comfortable and encouraged to participate. Continuously provide feedback, praise effort, and create opportunities for students to showcase their skills and progress. By implementing these strategies, teachers can foster a culture of active participation and engagement in the virtual PE class.

Assessment

Assessment in a virtual learning environment requires careful planning and consideration to effectively evaluate student learning. Table 4 shows the responses made by Physical Education teachers and students in Quezon City University towards physical education class in a virtual environment in terms of Assessment.

Table 4

Physical Education class in a virtual environment in terms of Assessment

Data revealed that the over-all computed mean value of the assessment made by

Practices	Teachers			Students			Over-all		
	X	SD	VI	X	SD	VI	X	SD	VI
1. Design assessments that focus on students' performance of physical activities and skills.	3.60	0.97	O	2.93	0.80	MO	**3.27**	**0.81**	**MO**
2. Encourage students to track their physical fitness progress using fitness apps or journals.	4.10	0.88	O	2.98	0.84	MO	**3.54**	**0.86**	**O**
3. Assign written assignments that require students to reflect on their understanding of PE concepts, analyze their own physical activity habits, or research and report on specific topics related to physical fitness.	3.90	0.88	O	3.01	0.80	MO	**3.45**	**0.82**	**O**
4. Use online quizzes or exams to assess students' understanding of PE theories, rules of different sports, or health-related concepts.	4.50	0.53	AO	2.98	0.80	MO	**3.74**	**0.83**	**O**
5. Incorporate peer assessments where students assess and provide feedback on their classmates' performances or exercise routines.	3.80	0.63	O	2.97	0.80	MO	**3.38**	**0.81**	**MO**
6. Assign students to prepare virtual demonstrations or presentations on specific PE topics.	3.90	0.88	O	3.04	0.81	MO	**3.47**	**0.82**	**O**
7. Assess students' active participation and engagement during virtual PE classes.	4.20	0.79	AO	3.03	0.80	MO	**3.62**	**0.83**	**O**
8. Assign self-assessment and reflection journals where students evaluate their own performance, set goals, and reflect on their learning experiences.	3.90	0.74	O	2.99	0.83	MO	**3.44**	**0.84**	**O**
9. Assess students' progression in specific skills or activities over time.	4.10	0.99	O	3.03	0.83	MO	**3.56**	**0.85**	**O**
10. Conduct virtual practical examinations where students demonstrate their knowledge and skills through live or recorded performances.	3.80	0.92	O	2.99	0.81	MO	**3.39**	**0.82**	**MO**
Over-all	**3.98**	**0.83**	**O**	**2.99**	**0.81**	**MO**	3.49	0.83	**O**

the respondents towards the Physical Education class held in a virtual learning environment in terms of assessment is 3.49 (SD=0.83) and interpreted as “Observed”.

Particularly, result shows that both group of respondents agreed that they “Observed” the use of online quizzes or exams to assess students' understanding of PE theories, rules of different sports, or health-related concepts (M=3.74, SD=0.83), the assessment of students' active participation and engagement during virtual PE classes (M=3.62, SD=0.83), the assessment of students' progression in specific skills or activities

over time (M=3.56, SD=0.85), the encouragement for students to track their physical fitness progress using fitness apps or journals (M=3.54, SD=0.86), the assigning of students to prepare virtual demonstrations or presentations on specific PE topics (M=3.47, SD=0.82), the assigning of written assignments that require students to reflect on their understanding of PE concepts, analyze their own physical activity habits, or research and report on specific topics related to physical fitness (M=3.45, SD=0.82), and the assigning of self-assessment and reflection journals where students evaluate their own performance, set goals, and reflect on their learning experiences (M=3.44, SD=0.84) in P.E class held in a virtual learning environment during the pandemic.

While the conduct of virtual practical examinations where students demonstrate their knowledge and skills through live or recorded performances (M=3.39, SD=0.82), incorporation of peer assessments where students assess and provide feedback on their classmates' performances or exercise routines (M=3.38, SD=0.81), and designing of assessments that focus on students' performance of physical activities and skills (M=3.27, SD=0.81) are "Moderately Observed" in P.E class held in a virtual learning environment according to the respondents.

Results highlight that when assessing students in a virtual PE class, it is important to provide clear instructions, communicate assessment criteria, and offer timely feedback to support their learning and improvement. Be flexible and considerate of the limitations of the virtual environment while designing assessments that align with learning objectives and promote student engagement.

Acquisition of Learning and Skills

The acquisition of learning and skills in a virtual learning environment involves adapting instructional approaches to the online setting. Table 5 shows the responses made by Physical Education teachers and students in Quezon City University towards physical education class in a virtual environment in terms of Acquisition of Learning and Skills.

Table 5

Physical Education class in a virtual environment in terms of Acquisition of Learning and Skills

Practices	Teachers			Students			Over-all		
	X	SD	VI	X	SD	VI	X	SD	VI
1. Clearly define and communicate the learning objectives for each lesson or unit.	4.20	0.79	AO	3.06	0.82	MO	**3.63**	**0.84**	**O**
2. Utilize pre-recorded videos or live demonstrations to visually illustrate proper techniques, movements, and skills.	3.90	0.74	O	2.97	0.82	MO	**3.44**	**0.83**	**O**
3. Provide students with instructional materials such as handouts, diagrams, or written instructions that reinforce the concepts and skills being taught.	4.20	0.63	AO	2.97	0.80	MO	**3.58**	**0.82**	**O**
4. Incorporate guided practice sessions where students have the opportunity to practice and apply the skills they have learned.	4.30	0.82	AO	2.97	0.84	MO	**3.63**	**0.86**	**O**
5. Provide regular and constructive feedback to students on their performance, technique, and progress.	4.40	0.84	AO	3.08	0.83	MO	**3.74**	**0.86**	**O**
6. Design skill progressions that allow students to gradually build upon their existing skills.	3.70	0.67	O	2.96	0.81	MO	**3.33**	**0.82**	**MO**
7. Encourage peer collaboration and interaction by assigning group activities or projects that require students to work together virtually.	4.20	0.79	AO	3.03	0.83	MO	**3.61**	**0.85**	**O**
8. Provide students with opportunities for independent practice outside of class time.	4.20	0.92	AO	2.99	0.81	MO	**3.59**	**0.83**	**O**
9. Implement assessments that evaluate students' understanding and application of the learned skills.	3.60	0.70	O	3.06	0.81	MO	**3.33**	**0.81**	**MO**
10. Encourage students to reflect on their learning experiences and set personal goals for skill development.	3.70	0.82	O	3.01	0.82	MO	**3.35**	**0.82**	**MO**
Over-all	**4.04**	**0.79**	**O**	**3.01**	**0.82**	**MO**	**3.52**	**0.84**	**O**

The result of the survey revealed that P.E teachers and students who participated in this study agreed that the given practices to promote acquisition of learning skills in Physical Education class that is held in a virtual learning environment during the pandemic are “Observed” with computed over-all mean value of 3.52 (SD=0.84).

Particularly, respondents agreed that they “Observed” practices such as providing regular and constructive feedback to students on their performance, technique, and progress (M=3.74, SD=0.86), clearly defining and communicating the learning objectives for each lesson or unit (M=3.63, SD=0.84), incorporating guided practice sessions where students have the opportunity to practice and apply the skills they have learned (M=3.63, SD=0.86), encouraging peer collaboration and interaction by assigning group activities or projects that require students to work together virtually (M=3.61, SD=0.85), and providing students with opportunities for independent practice outside of class time (M=3.59, SD=0.83) in P.E class that is held in a virtual learning environment during the conduct of this study.

Furthermore, providing students with instructional materials such as handouts, diagrams, or written instructions that reinforce the concepts and skills being taught (M=3.58, SD=0.82) and utilizing pre-recorded videos or live demonstrations to visually illustrate proper techniques, movements, and skills (M=3.44, SD=0.83) are “Observed” in a P.E class held in a virtual learning environment. While encouraging students to reflect on their learning experiences and set personal goals for skill development (M=3.35, SD=0.82), designing skill progressions that allow students to gradually build upon their existing skills (M=3.33, SD=0.82), and implementing assessments that evaluate students' understanding and application of the learned skills (M=3.33, SD=0.81) are “Moderately Observed” in P.E class held in a virtual learning environment according to the respondents during the conduct of this study.

It is important to maintain regular communication with students, provide clear instructions, and ensure access to necessary resources and equipment for skill acquisition. By implementing these strategies, students can continue to acquire and develop their physical education learning and skills effectively in a virtual environment.

Difference in the Response made by Teachers and Students towards Physical Education class in a Virtual Environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills

The result of the multivariate analysis sample on the response of the two groups of respondents towards Physical Education class in a Virtual Environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills using one-way ANOVA is presented in Table 6.

Table 6

Difference in the Response of the Two Groups of Respondents towards Physical Education class in a Virtual Environment in terms of Teaching Methods and Strategies, Student and Teacher Interaction, Class Participation, Assessment, and Acquisition of Learning and Skills

		Sum of Squares	df	Mean Square	F	p-val	Interpretation	Decision
Teaching Methods and Strategies	Between Groups	1.280	1	1.280	42.216	.000	Statistically Significant	Reject H_0
	Within Groups	.546	18	.030				
	Total	1.826	19					
Student and Teacher Interaction	Between Groups	.221	1	.221	4.991	.038	Statistically Not Significant	Accept H_0
	Within Groups	.795	18	.044				
	Total	1.016	19					
Class Participation	Between Groups	.054	1	.054	1.275	.274	Statistically Not Significant	Accept H_0
	Within Groups	.764	18	.042				
	Total	.818	19					
Assessment	Between Groups	4.851	1	4.851	148.998	.000	Statistically Significant	Reject H_0
	Within Groups	.586	18	.033				
	Total	5.437	19					
Acquisition of Learning and Skills	Between Groups	5.305	1	5.305	125.303	.000	Statistically Significant	Reject H_0
	Within Groups	.762	18	.042				
	Total	6.067	19					

It can be gleaned from the table the computed F-values in terms of teaching methods and strategies, $F(1,18)= 42.216$, $p<.05$; assessment, $F(1,18)=148.998$, $p<.05$; and acquisition of learning and skills, $F(1,18)= 125.303$, $p<.05$ are greater than the critical value at 0.05 level of significance. By conventional criteria, the differences are considered to be statistically significant. This means that the two groups of respondents have different responses towards Physical Education class in a Virtual Environment in terms of Teaching Methods and Strategies, Assessment, and Acquisition of Learning and Skills. Therefore, the researcher decides to reject the null hypothesis that there is no significant difference in the response made by the respondents towards Physical Education class in a Virtual Environment in terms of teaching methods and strategies, assessment, and acquisition of learning and skills.

On the other hand, result show the computed F-values in terms of student and teacher interaction, $F(1,18)= 4.991$, $p>.05$ and class participation, $F(1,18)=1.275$, $p>.05$ are less that the critical value at 0.05 level of significance. By conventional criteria, the differences are considered to be not statistically significant. This means that the two groups of respondents have the same responses towards Physical Education class in a Virtual Environment in terms of student and teacher interaction and class participation. Therefore, the researcher decides not to reject the null hypothesis that there is no significant difference in the response made by the respondents towards Physical Education class in a Virtual Environment in terms of student and teacher interaction and class participation.

In terms of teaching methods and strategies, P.E teachers may need to adapt their teaching methods and strategies to suit the virtual environment. They may focus more on theoretical aspects, health education, or fitness-related topics. Assessments could include written assignments, quizzes, or online discussions related to these areas. While students may have to adjust to a more theory-based approach to physical education. They may be assessed on their understanding of concepts, ability to apply knowledge to real-life situations, or their participation in online fitness programs or individual

exercise routines.

In terms of assessment, teachers may design assessments that measure students' understanding of theoretical concepts, application of knowledge to real-life scenarios, or ability to analyze and evaluate fitness-related information. These assessments may include quizzes, essays, projects, or video presentations. While students may provide feedback on the clarity of assessment criteria, fairness of evaluation methods, or the alignment of assessments with the learning objectives and course content.

In terms of acquisition of learning and skills, P.E teachers may assess students' acquisition of knowledge in areas such as anatomy, nutrition, fitness principles, or sports psychology. They may also evaluate students' ability to develop and follow individualized fitness plans, engage in health-promoting behaviors, or apply principles of biomechanics and exercise physiology. While students may reflect on their learning experiences, the acquisition of theoretical knowledge, the development of personal fitness goals, or the application of physical education concepts to their daily lives.

Challenges in Conducting Physical Education Classes in a Virtual Learning Environment

Table 7 shows the results of the survey conducted in this study towards the challenges encountered in conducting Physical Education classes in a virtual learning environment in terms of instruction and learning.

Instruction and Learning

Table 7

Challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of Instruction and Learning

Challenges	Teachers			Students			Over-all			Rank
	X	SD	VI	X	SD	VI	X	SD	VI	
1. In a virtual setting, it may be challenging for teachers to observe and assess students' performance accurately.	3.90	0.88	C	3.96	0.83	C	**3.93**	**0.83**	**C**	**9**
2. Assessing students' performance authentically in a virtual PE class can be challenging.	4.10	0.88	C	4.01	0.81	C	**4.06**	**0.81**	**C**	**4.5**
3. Teachers may need to explore alternative assessment tools and technologies that can be used in a virtual environment.	3.70	0.67	C	4.02	0.81	C	**3.86**	**0.81**	**C**	**10**
4. In a virtual setting, there may be a greater emphasis on self-assessment and self-reflection.	4.30	0.67	VC	4.01	0.82	C	**4.16**	**0.81**	**C**	**1.5**
5. Providing timely and detailed feedback to students can be more challenging in a virtual environment.	4.20	0.92	VC	4.02	0.85	C	**4.11**	**0.85**	**C**	**3**
6. Some physical skills or movements may be difficult to assess through video submissions or virtual platforms.	4.10	0.99	C	4.03	0.79	C	**4.06**	**0.80**	**C**	**4.5**
7. Students may have limited access to PE equipment and adequate space for assessments in their homes.	3.90	0.88	C	4.07	0.81	C	**3.98**	**0.81**	**C**	**7**

8. Conducting individualized assessments for each student can be challenging in a virtual setting.	4.00	0.94	C	3.97	0.81	C	**3.99**	**0.81**	**C**	**6**
9. Assessments conducted in a virtual environment require careful consideration of data security and privacy.	3.90	0.88	C	4.05	0.81	C	**3.97**	**0.82**	**C**	**8**
10. Teachers may need to adjust assessment criteria and expectations to account for the limitations of the virtual setting.	4.30	0.67	VC	4.02	0.80	C	**4.16**	**0.80**	**C**	**1.5**
Over-all	4.04	0.83	C	4.02	0.81	C	**4.03**	**0.81**	**C**	

Table 7 shows that among the ten identified challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of instruction and learning, demonstrating complex movements or skills through a virtual platform may be challenging is ranked 1 with computed over-all mean value of 4.11 (SD=0.83) and interpreted as “Challenging”. In addition, respondents rank building collaboration and teamwork skills can be more challenging in a virtual environment as second while maintaining student engagement and focus during virtual PE classes can be a challenge as third among the given challenges with computed over-all mean value of 4.06 (SD=0.82) and 4.06 (SD=0.80) respectively and interpreted as “Challenging”.

Furthermore, it can be gleaned from the table that respondents considered assessing students' performance and progress in a virtual PE class may require innovative assessment methods (M=4.05, SD=0.79), teachers need to adapt their teaching strategies and lesson plans to suit the virtual environment (M=4.01, SD=0.82), students may have limited access to PE equipment and adequate space for physical activities in their homes (M=3.97, SD=0.82), difficult for teachers to provide individualized attention to students (M=3.96, SD=0.84), pose accessibility challenges for students with limited resources or physical disabilities (M=3.94, SD=0.77), immediate feedback is crucial for students to understand and adjust their performance (M=3.89, SD=0.82), and challenging to provide hands-on instruction and physical corrections to students (M=3.74, SD=0.79) as “Challenging” factors to be considered in conducting P.E classes in a virtual learning environment.

In summary, all the identified challenges that can be faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of instruction and learning are considered “Challenging” by the respondents with computed over-all mean of 3.98 (SD=0.81).

It is important for educators to address these challenges creatively and proactively. This can involve modifying activities to suit the virtual setting, providing clear instructions and support, offering alternative equipment options, fostering a positive learning environment, and utilizing various digital tools to enhance engagement and interaction. Regular communication with students and their families is also crucial to address individual needs and concerns.

Teaching Methodology and Strategies

Table 8 shows the results of the survey conducted in this study towards the challenges encountered in conducting Physical Education classes in a virtual learning environment in terms of teaching methodologies and strategies.

Table 8

Challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of Teaching Methodology and Strategies

Challenges	Teachers			Students			Over-all			Rank
	X	SD	VI	X	SD	VI	X	SD	VI	
1. Adapting traditional PE activities to the virtual setting can be challenging.	4.20	0.92	VC	3.98	0.82	C	**4.09**	**0.83**	**C**	**2**
2. Demonstrating and instructing physical movements and techniques through a virtual platform may not be as effective as in-person instruction.	4.10	0.88	C	3.99	0.80	C	**4.04**	**0.80**	**C**	**5**
3. Maintaining student engagement and active participation in virtual PE classes can be challenging.	4.00	0.67	C	3.99	0.82	C	**4.00**	**0.82**	**C**	**7**
4. Providing individualized instruction and feedback can be more challenging in a virtual setting.	4.00	0.82	C	3.94	0.83	C	**3.97**	**0.83**	**C**	**9**
5. Monitoring students' progress and assessing their performance in a virtual environment can be more difficult.	4.00	0.82	C	3.95	0.78	C	**3.98**	**0.78**	**C**	**8**
6. Virtual PE classes may lack the social interaction and collaboration opportunities that are typically present in traditional PE settings.	4.10	0.88	C	4.01	0.80	C	**4.06**	**0.80**	**C**	**4**
7. Students may have limited access to PE resources, such as equipment, open spaces, or specialized facilities, at home.	3.90	0.99	C	4.03	0.83	C	**3.96**	**0.83**	**C**	**10**
8. Technical issues, such as poor internet connectivity or limited access to devices, can disrupt the smooth delivery of virtual PE classes.	4.10	0.74	C	3.92	0.81	C	**4.01**	**0.81**	**C**	**6**
9. Providing immediate feedback and correction to students' movements and techniques can be challenging in a virtual setting.	4.10	0.74	C	4.06	0.84	C	**4.08**	**0.83**	**C**	**3**
10. Coordinating and managing virtual PE classes, especially when students are in different locations and time zones, can be complex.	4.30	0.67	VC	4.04	0.82	C	**4.17**	**0.82**	**C**	**1**
Over-all	**4.08**	**0.79**	**C**	**3.99**	**0.82**	**C**	**4.04**	**0.82**	**C**	

Table 8 shows that among the ten identified challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of teaching methodology and strategies, coordinating and managing virtual PE classes, especially when students are in different locations and time zones, can be complex is ranked 1 with computed over-all mean value of 4.17 (SD=0.82) and interpreted as “Challenging”. In addition, respondents rank adapting traditional PE activities to the virtual setting can be challenging as second while Adapting traditional PE activities to the virtual setting can be challenging as third among the given challenges with computed over-all mean value of 4.09 (SD=0.83) and 4.08 (SD=0.83) respectively and interpreted as “Challenging”.

Furthermore, it can be gleaned from the table that respondents considered virtual PE classes may lack the social interaction and collaboration opportunities that are typically present in traditional PE settings (M=4.06, SD=0.80), demonstrating and instructing physical movements and techniques through a virtual platform may not be as effective as in-person instruction (M=4.04, SD=0.80), technical issues, such as poor internet connectivity or limited access to devices, can disrupt the smooth delivery of virtual PE classes (M=4.01, SD=0.81), maintaining student engagement and active participation in virtual PE classes can be challenging (M=4.00, SD=0.82), monitoring students' progress and assessing their performance in a virtual environment can be more difficult (M=3.98, SD=0.78), providing individualized instruction and feedback can be more challenging in a virtual setting (M=3.97, SD=0.83), and students may have limited access to PE resources, such as equipment, open spaces, or specialized facilities, at home (M=3.96, SD=0.83) as “Challenging” factors to be considered in conducting P.E classes in a virtual learning environment.

In summary, all the identified challenges that can be faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of teaching methodology and strategies are considered “Challenging” by the respondents with computed over-all mean of 4.04 (SD=0.82).

Results stress that addressing these challenges requires creativity, adaptability, and the use of various instructional strategies. Teachers can utilize clear instructions, visual aids, modified activities, asynchronous and synchronous learning approaches, and alternative assessment methods to enhance instruction and promote meaningful learning experiences in the virtual PE environment. Regular communication with students and their families is also crucial to address individual needs and provide support.

Assessment

Table 9 shows the results of the survey conducted in this study towards the challenges encountered in conducting Physical Education classes in a virtual learning environment in terms of assessment.

Table 9

Challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of Assessment

Challenges	Teachers			Students			Over-all			Rank
	X	SD	VI	X	SD	VI	X	SD	VI	
1. In a virtual setting, it may be challenging for teachers to observe and assess students' performance accurately.	3.90	0.88	C	3.96	0.83	C	**3.93**	**0.83**	**C**	**9**
2. Assessing students' performance authentically in a virtual PE class can be challenging.	4.10	0.88	C	4.01	0.81	C	**4.06**	**0.81**	**C**	**4.5**
3. Teachers may need to explore alternative assessment tools and technologies that can be used in a virtual environment.	3.70	0.67	C	4.02	0.81	C	**3.86**	**0.81**	**C**	**10**
4. In a virtual setting, there may be a greater emphasis on self-assessment and self-reflection.	4.30	0.67	VC	4.01	0.82	C	**4.16**	**0.81**	**C**	**1.5**
5. Providing timely and detailed feedback to students can be more challenging in a virtual environment.	4.20	0.92	VC	4.02	0.85	C	**4.11**	**0.85**	**C**	**3**
6. Some physical skills or movements may be difficult to assess through video submissions or virtual platforms.	4.10	0.99	C	4.03	0.79	C	**4.06**	**0.80**	**C**	**4.5**
7. Students may have limited access to PE equipment and adequate space for assessments in their homes.	3.90	0.88	C	4.07	0.81	C	**3.98**	**0.81**	**C**	**7**
8. Conducting individualized assessments for each student can be challenging in a virtual setting.	4.00	0.94	C	3.97	0.81	C	**3.99**	**0.81**	**C**	**6**
9. Assessments conducted in a virtual environment require careful consideration of data security and privacy.	3.90	0.88	C	4.05	0.81	C	**3.97**	**0.82**	**C**	**8**
10. Teachers may need to adjust assessment criteria and expectations to account for the limitations of the virtual setting.	4.30	0.67	VC	4.02	0.80	C	**4.16**	**0.80**	**C**	**1.5**
Over-all	4.04	0.83	C	4.02	0.81	C	**4.03**	**0.81**	**C**	

Table 9 shows that among the ten identified challenges faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of assessment, in a virtual setting, there may be a greater emphasis on self-assessment and self-reflection and teachers may need to adjust assessment criteria and expectations to account for the limitations of the virtual setting are ranked 1.5 with computed over-all mean value of 4.16 (SD=0.81) and interpreted as "Challenging". In addition, respondents rank providing timely and detailed feedback to students can be more challenging in a virtual environment as third among the given challenges with computed over- all mean value of 4.11 (SD=0.85) and interpreted as "Challenging".

Furthermore, it can be gleaned from the table that respondents considered some physical skills or movements may be difficult to assess through video submissions or virtual platforms (M=4.06, SD=0.80), assessing students' performance authentically in a virtual PE class can be challenging (M=4.06, SD=0.81), conducting individualized assessments for each student can be challenging in a virtual setting (M=3.99, SD=0.81), students may have limited access to PE equipment and adequate space for assessments in their homes (M=3.98, SD=0.81), assessments conducted in a virtual environment require careful consideration of data security and privacy (M=3.97, SD=0.82), in a virtual setting, it may be challenging for teachers to observe and assess students' performance accurately (M=3.93, SD=0.83), and teachers may need to explore alternative assessment tools and technologies that can be used in a virtual environment (M=3.86, SD=0.81) as "Challenging" factors to be considered in conducting P.E classes in a virtual learning environment.

In summary, all the identified challenges that can be faced by the Physical Education teachers and students in conducting physical education classes in a virtual learning environment in terms of assessment are considered "Challenging" by the respondents with computed over-all mean of 4.03 (SD=0.81).

Results accentuate that to address the identified challenges, teachers can employ various strategies. This includes clear communication and instructions, utilizing visual aids and demonstrations, incorporating interactive and engaging activities, providing opportunities for student collaboration and

discussion, utilizing alternative assessment methods, offering personalized feedback through video recordings or one-on-one sessions, and promoting self-directed learning through the use of online resources and fitness trackers. Regular communication with students and their families is also crucial to address individual needs and provide ongoing support.

Interventions or Strategies to Improve Physical Education Teaching and Learning in a Virtual Learning Environment

To improve physical education teaching and learning in a virtual learning environment, educators can implement various interventions and strategies. Here are some effective approaches:

- Clear Communication and Expectations: Establish clear communication channels with students and parents to provide instructions, expectations, and schedules for virtual PE classes. Clearly outline the learning goals, assessment criteria, and participation requirements to ensure everyone is aware of the expectations.
- Interactive Online Platforms: Utilize interactive online platforms and tools that enable engagement and collaboration. These can include video conferencing tools, discussion boards, and virtual classrooms where students can interact with their peers and teachers, ask questions, and share their progress.
- Modified and Adapted Activities: Modify and adapt traditional PE activities to suit the virtual environment and students' available resources. Provide alternative exercises that can be done at home, incorporate household items as equipment substitutes, and offer flexibility in the execution of activities to accommodate varying skill levels and available space.
- Demonstrations and Visual Aids: Use videos and visual aids to demonstrate proper techniques, movements, and exercises. Record demonstrations or provide pre-recorded instructional videos that students can access and review at their own pace to reinforce learning.
- Individualized Support: Provide individualized support and feedback to students. Conduct one-on-one virtual sessions or small group discussions to address

specific concerns, offer personalized guidance, and provide constructive feedback on students' performance and progress.

- Self-Assessment and Reflection: Encourage students to engage in self-assessment and reflection. Have them record and review their performances, evaluate their progress, and set goals for improvement. Promote self-reflection through journals or online discussion platforms where students can share their experiences and insights.
- Virtual Challenges and Competitions: Organize virtual challenges or competitions to foster motivation and engagement. Encourage students to compete in physical fitness challenges, skill-based contests, or team-based activities. Recognize and celebrate students' achievements to maintain their enthusiasm and sense of accomplishment.
- Peer Collaboration and Accountability: Facilitate peer collaboration and accountability in virtual PE classes. Assign students to virtual exercise buddies or small groups, where they can support and motivate each other. Encourage peer feedback and create opportunities for students to share their progress with their peers.
- Health and Wellness Education: Incorporate health and wellness education into virtual PE classes. Provide resources, lessons, and discussions on nutrition, mental well-being, injury prevention, and overall healthy lifestyle choices. Encourage students to integrate these principles into their daily lives.
- Parent Involvement and Support: Engage parents in the virtual PE learning process. Provide guidelines and resources for parents to support their children's physical activity at home.

Encourage open communication between parents and teachers to address concerns and ensure continuity in students' engagement.

It is important to regularly assess the effectiveness of these interventions and strategies and make adjustments as needed. Collect feedback from students and parents to gauge their experiences and satisfaction with the virtual PE learning environment. Flexibility, creativity, and ongoing communication are key to enhancing physical education teaching and learning in a virtual setting.

Conclusion

In conclusion, the findings demonstrate the importance of considering the limitations of the virtual environment and making necessary adjustments to facilitate effective virtual physical education classes. The results highlight the significance of regular communication, clear instructions, and ongoing support to keep students engaged and motivated. Creating a supportive and inclusive virtual environment is crucial for encouraging active participation and interaction among students. By utilizing various strategies, teachers can ensure that student and teacher interaction remains central, enhancing the overall learning experience.

The findings underscore the need to establish a positive and supportive virtual environment where all students feel comfortable and encouraged to participate. Continuous feedback, recognition of effort, and opportunities for students to showcase their skills and progress are key elements for fostering active participation and engagement.

When assessing students in a virtual PE class, providing clear instructions, communicating assessment criteria, and offering timely feedback are essential to support their learning and improvement. Flexibility and consideration of the virtual environment's limitations are necessary when designing assessments that align with learning objectives and promote student engagement. Maintaining regular communication, providing clear instructions, and ensuring access to necessary resources and equipment are crucial for effective skill acquisition in a virtual environment.

The findings indicate that there are significant differences in the responses of the two groups of respondents regarding teaching methods and strategies, assessment, and acquisition of learning and skills. However, no significant differences were found in their responses concerning student and teacher interaction and class participation.

Overall, to enhance physical education teaching and learning in a virtual setting, educators should implement various interventions and strategies. It is important to

regularly assess their effectiveness, make necessary adjustments, and collect feedback from students and parents to gauge their experiences and satisfaction. Flexibility, creativity, and ongoing communication are key factors for improving physical education teaching and learning in a virtual environment.

References

Ardiansyah, R., & Setiawan, C. (2023). Physical education teachers' reflection about their learning in post-pandemic era: A Mixed-Method study. International Journal of Social Science Research and Review, 6(6), 279-286.

Bhuwandeep, Das, P. P., & Mishra, S. N. (2023). Management education in pandemic times: Insights, challenges, and opportunities for the future. Journal of Education for Business, 98(2), 68-76.

Burhaein, E., Tarigan, B., Budiana, D., Hendrayana, Y., & Phytanza, D. T. P. (2022). Profile of changes in adaptive physical education learning during the Covid-19 pandemic. In Innovation on Education and Social Sciences (pp. 19-28). Routledge.

Camarador, L. D., & Camarador, R. A. (2023). Teaching Outdoor and Adventure Activities in the Philippines during the COVID-19 Pandemic: Significance, Challenges, and Opportunities.

Ferreira, H. J., Patton, K., & Parker, M. (2023). From isolation to collaboration: Development of a community of physical education teachers in pandemic times. Movimento, 28.

Ferreira Silva, R. M., Fonseca Terra, L., da Silva Valadão Fernandes, M., Noll, P. R. E. S., de Almeida,

A. A., & Noll, M. (2023). Physical Activity and Sedentary Behavior in High School Students: A Quasi Experimental Study via Smartphone during the COVID-19 Pandemic. Children, 10(3), 479.

Foye, B., & Grenier, M. (2022). Reflections on the successes and challenges of teaching physical education during the COVID-19 pandemic. A retrospective of teaching, technology, and teacher education during the COVID-19 pandemic, 51.

Johnson, A. M., Tandon, P. S., Hafferty, K. R., Senturia, K., Garrett, K. A., Bollinger, B. J., & Kroshus,

E. (2023). Barriers and facilitators to comprehensive, school-based physical activity promotion for adolescents prior to and during the COVID-19 pandemic: a qualitative study. Health Education Research, 38(1), 69-83.

Lambert, K., Hudson, C., & Luguetti, C. (2023). What would bell hooks think of the remote teaching and learning in Physical Education during the COVID-19 pandemic? A critical review of the literature. Sport, Education and Society, 1-17.

Marín-Suelves, D., Ramón-Llin, J., & Gabarda, V. (2023). The Role of Technology in Physical Education Teaching in the Wake of the Pandemic. Sustainability, 15(11), 8503.

Mendes, P. C., Fachada, M., Melo, R., Campos, F., Nobre, P., & Rodrigues, A. M. (2023). The COVID- 19 pandemic impact on the Portuguese Physical Education classes. Retos: nuevas tendencias en educación física, deporte y recreación, (49), 674-684.

Moustakas, L., & Robrade, D. (2022). The challenges and realities of e-learning during COVID-19: The case of university sport and physical education. Challenges, 13(1), 9.

Nanda, S., & Ryan, J. M. (2023). School Closures During the COVID-19 Pandemic: Diverse Strategies, Unequal Impacts 1. In Pandemic Pedagogies (pp. 58-72). Routledge.

O'Brien, N., O'Brien, W., Costa, J., & Adamakis, M. (2022). Physical education student teachers' wellbeing during Covid-19: Resilience resources and challenges from school placement. European physical education review, 28(4), 873-889.

Peñas, J. D. (2022). Challenges in modular learning: teaching physical education in the midst of COVID-19 Pandemic. International Journal of Research Publications, 95(1), 12-12.

Sánchez, R. M., Alcerreca, M. F. L., García, L. G. S., Cavazos, E. A. G., & González, A. R. L. L. (2023). Educational Quality in Physical Education during Covid-19 Pandemic. Sport Management in the Ibero-American World: Product and Service Innovations.

Sinag, J. M. D. P. (2023). Experiences of physical education teachers in District of Dinalupihan on students' performance assessment in times of covid-19 pandemic. Indonesian Journal of Research in Physical Education, Sport, and Health (IJRPESH), 1(1), 15-29.

Sultanto, M. A., Al Afghani, R. I., Meisya, S. D., Salsabila, I. A., Rohimat, S. S., & Stephani, M. R. (2023). Physical education online class for students with hearing impairment during covid-19 pandemic. ASEAN Journal of Community and Special Needs Education, 2(1), 17-26.

Temel, C., Gökduman, Ç., Uğraş, S., Sağın, A. E., Yücekaya, M. A., Kartal, M., & Toros, T. (2023). The Impact of COVID-19 Process on Sustainability in Education: Work Alienation of Physical Education and Sports Teachers. Sustainability, 15(3), 2047.

Tounsi, O., Koubaa, A., Trabelsi, O., Masmoudi, L., Mkaouer, B., Trabelsi, K., ... & Bahloul,

M. (2023). The Good Behaviour Game: Maintaining students' physical distancing in physical education classes during the COVID-19 pandemic. Health Education Journal, 82(2), 200-210.