

Virtual PE: Challenges and Benefits of Online Physical Education

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Abstract

Introducing both opportunities and obstacles, the transfer to virtual platforms in education has had a considerable influence on the delivery of physical education (PE), which has been a subject of significant change. The purpose of this research is to investigate the landscape of online physical education by analysing its efficacy, accessibility, and the degree to which it satisfies the objectives of physical, social, and cognitive development. Virtual physical education has a number of advantages, including the increase in flexibility, the use of cutting-edge fitness applications and monitoring technologies, and the capacity to reach a wide range of student groups. On the other hand, substantial barriers continue to exist, such as decreased physical involvement, a lack of equipment and space at home, less connection with peers, and difficulty in monitoring and evaluating performance. The study emphasises the significance of adaptation on the part of teachers, motivation on the part of students, and engagement of parents in successfully implementing virtual physical education. Hybrid models, gamification, and increased digital training for instructors are some of the recommendations that have been made for enhancing the delivery of physical education online. The research highlights the importance of adopting a well-rounded strategy that integrates contemporary technical advancements with pedagogical sensitivity in order to guarantee the comprehensive growth of students.

Keywords: *Virtual, physical education, benefits*

Introduction

As a result of the COVID-19 epidemic, educational systems all over the world underwent a transformation that had never been seen before. This transformation required institutions to move away from traditional classroom-based instruction and towards online learning platforms. Among the disciplines that were impacted, Physical Education (PE) was one of the subjects that encountered additional difficulties due to the fact that it is fundamentally physical and participatory. Traditionally, physical education (PE) relies on direct involvement, supervision, and access to sports facilities. These are components that are difficult to recreate in a virtual setting since they are designed to foster physical fitness, collaboration, motor skills, and mental well-being. As a result of the requirement of maintaining physical education through digital means, virtual physical education programs have become increasingly popular in spite of these limitations. Even though they were held in limited home settings, these online courses made use of technology to keep students engaged and to encourage them to develop healthy behaviours. The ability to provide courses remotely has been made possible by a variety of platforms and technologies, including video demonstrations, fitness apps, activity monitoring gadgets, and gamified workouts. However, there has been some disruption in the transition. The use of virtual physical education raises questions regarding the motivation of students, the equality of access, the accuracy of assessments, and the efficacy of instruction in the absence of real-time feedback and interactive face-to-face engagement. On the other hand, it also makes it possible to engage in personalised learning, to be inclusive, and to enhance one's fitness at one's own speed. The purpose of this study is to investigate the dual aspects of physical education (PE) through an examination of the advantages and disadvantages that virtual PE brings to teachers, students, and parents. The purpose of this study is to give insights and recommendations for

improving the efficacy of online physical education instruction in both emergency and long-term educational contexts. This will be accomplished by analysing both sides of the argument. As the issue of physical inactivity among young people grows more prevalent, which is made worse by the sedentary nature of online learning routines, the function of virtual physical education has become more important than it has ever been. Despite the fact that the World Health Organisation (WHO) advises that children and adolescents engage in at least sixty minutes of moderate to vigorous physical activity on a daily basis, it has become more difficult to meet these standards due to the increased amount of time spent in front of screens and the restricted access to outside spaces. Virtual physical education has the ability to bridge this gap by providing scheduled activity, fitness awareness, and health education. This promise may be realised when virtual PE is successfully planned and executed. A further advantage of online physical education is that it presents a chance to reevaluate the conventional approach of physical education. It promotes the incorporation of health literacy, tools for self-monitoring, and exercise routines that are maintained throughout one's whole life. When it comes to some situations, it gives students who may otherwise feel intimidated or marginalised in group sports settings the ability to participate more freely and with more self-assurance from the comfort of their own homes. Digital divides, varied degrees of parental support, a lack of desire among students, and the difficulties in maintaining discipline and engagement in a distant environment are some of the systemic challenges that make it difficult to offer successful virtual physical education. Despite these possibilities, the delivery of virtual PE is riddled with systemic issues. When it comes to transferring traditional classroom courses to online forms, teachers are faced with the additional challenge of ensuring that students continue to be secure, interested, and active.

Literature Review

With the COVID-19 pandemic, which required a rethinking of how physical activity is taught in academic contexts, the rise of online physical education has garnered the attention of academics, particularly during and after the epidemic. There is a complicated terrain that is shown by the literature, which highlights both the potential and the difficulties of virtual physical education.

Evolution of Physical Education in Digital Environments

Daum and Buschner (2012) state that the incorporation of technology into physical education began a significant amount of time prior to the pandemic. This was accomplished through the use of fitness apps, pedometers, and heart rate monitors. On the other hand, full-scale online physical education instruction became common during the epidemic, as documented by Varea and González-Calvo (2020). They emphasise that teachers were required to fast adjust to foreign teaching modes with little to no assistance from the institution.

Benefits of Virtual Physical Education

A number of studies have highlighted the advantages of virtual physical education, particularly with regard to its adaptability, accessibility, and opportunity for customisation. Sitkowski (2021) emphasises that students who take physical education classes online have the opportunity to select from a wide range of activities that are tailored to their own interests and settings, which may result in increased levels of intrinsic motivation. In addition, online platforms provide the possibility of studying at one's own speed and the incorporation of health education through the use of multimedia materials (Barrett et al., 2020).

Challenges and Limitations

Many research have pointed out the limitations and difficulties of virtual physical education, despite the fact that it has these benefits. According to Mohnsen (2021), the effectiveness of physical education cannot be completely realised in the absence of direct connection between teachers and students, feedback in real time, and access to resources for sports infrastructure. In a similar vein, Casey and MacPhail (2018) emphasise that online physical education frequently results in a reduction in the amount of physical exertion and involvement, particularly among adolescents who do not have parental supervision or incentive. The disparity of technological resources has also emerged as a significant problem. In accordance with the findings of study conducted by Trust and Whalen (2020), students who originate from homes with low incomes have a more difficult time gaining access to digital devices and dependable internet, which results in inconsistent engagement and learning outcomes.

Pedagogical Approaches and Innovations

Recent studies have advocated for the implementation of novel pedagogical methodologies in order to enhance the delivery of physical education online. Increasing student participation may be accomplished by the implementation of gamification, peer challenges, and wearable activity trackers, as suggested by Bailey et al. (2022). Other people, such as Chen and Sun (2020), advocate for hybrid models that integrate asynchronous instruction with occasional in-person sessions. This is done in order to solve the limitations of formats that are only carried out online.

Teacher Training and Support

Effectiveness of virtual physical education is highly dependent on the level of digital competency and preparation of the instructor. It was discovered by O'Brien et al. (2021) that the majority of physical education teachers had just a limited amount of training in the delivery of virtual teaching, which frequently resulted in the use of pre-recorded films or basic fitness routines. Therefore, it is vital to have professional development programs that concentrate on digital pedagogy, classroom management in virtual environments, and adaptive assessment methodologies.

Research Methodology

Participants

In 2022 and 2023, during the COVID-19 lockdowns, 35 physical education teachers from Fijian secondary schools were found to have been actively engaging in online instruction. In order to recruit participants, we used methods including snowball sampling and convenience sampling, and we reached out to people through our professional and social networks. The snowball effect allowed us to collect a more diverse set of data. Participating students and faculty members came from a variety of schools in Fiji because the study project used a random selection approach. The survey came with a consent form that explained the study's purpose, the time commitment, the inclusion criteria, and the participants' ability to stop participating at any point. The research encompassed PETs who were employed by Fijian secondary or high schools. Online survey questions and open-ended questions were both filled out by the respondents.

Instrumentation

This mixed-methods study used an integrated web application (Google Forms) to gather quantitative data during the COVID-19 school lockdowns. Gathering demographic data and responses to closed-ended questions on teachers' experiences in OLPEs (online language learning environments) was the goal of this application. To round out the quantitative data, qualitative viewpoints were gathered through in-depth interviews with participants. As an example, "What are your thoughts on online language learning and instruction?" was one of several open-ended questions posed during the interviews. In what ways did the professional development workshops enhance the methods of teaching OLPE? Participants were also encouraged to think about how the experience has shaped their understanding of language and literacy teaching outside of the classroom.

Data Analysis

We used IBM SPSS (Version 25) to analyse the demographic characteristics and participant feedback statistically in this study. Using N Vivo 14, a different statistical program, we analysed the interview transcripts for qualitative data. This method proved successful in identifying key themes and patterns while keeping the data open and honest, according to Morison and Moir (1998) and Richards and Richards (1994). Thanks to the study, we were able to systematically look at the participants' perspectives and experiences regarding OLPE training during the COVID-19 school lockdowns. A comprehensive understanding of teachers' experiences was the end result of this research.

Results and Discussion

During the COVID-19 lockdown, the study aimed to ascertain (a) how PE teachers made use of online learning and practice (OLPE), (b) what kinds of professional development (PD) and online skill-building workshops were accessible, and (c) how PE teachers would perceive and make use of OLPE going forward, as well as how they would disseminate the knowledge they gained.

Demographics

The sample consisted of 22 males (62.9% of the total) and 13 girls (37.1%). Table 1 shows the diverse demographics of the participants. The largest age group, comprising 37.1% of the total, was that of individuals aged 31–40, while the next largest age group, 11.4%, was that of people aged 51–60. Over half of the nation's schools were located in urban areas, while the remaining half were in suburban, rural, or maritime settings. Each of the PE teachers had at least a bachelor's degree and a minimum of fifteen years of experience in the field.

Table 1 Frequencies for Demographic Variables

Category	Variable	Frequency	Percent	Cumulative percent
Gender	Male	22	62.9	62.9
	Female	13	37.1	100.0
Age	21–30	8	22.9	22.9
	31–40	13	37.1	60.0
	41–50	10	28.6	88.6
	51–60	4	11.4	100.0
School setting	Urban	14	40.0	40.0
	Suburban	8	22.9	62.9
	Rural	8	22.9	85.7
	Maritime	5	14.3	100.0
Qualification in PE	Diploma	14	40.0	40.0
	Bachelor	17	48.6	88.6
	Postgraduate	4	11.4	100.0
Teaching experience	1–5 years	10	28.6	28.6
	6–10 years	6	17.1	45.7
	11–15 years	6	17.1	62.9
	Over 15 years	13	37.1	100.0

Teachers' Experiences in OLPE Teaching During Lockdown

But this study also looked at how different genders, ages, school settings, qualifications, and years of experience affected teachers' perspectives on online language and literacy education (OLPE) during lockdowns. Consistent with previous research, the investigations indicated that instructors' perceptions of online instruction were similar. Instructors' experiences with online learning performance evaluation (OLPE) included (a) challenges they faced, (b) their readiness to teach online, (c) students' and teachers' levels of online interaction, (d) parents' and teachers' consultations regarding OLPE, (e) assignments and feedback, and (f) teachers' and students' effectiveness in OLPE. Several studies have reached similar conclusions, focussing on different aspects of online language learning as well as instructors' experiences.

Challenges Faced in OLPE Teaching

Figure 1 displays the data showing that instructors' challenges did not differ significantly by age, gender, school type, or degrees. A lack of online physical education (OLPE) preparation and professional development sessions emerged as the most major difficulty that physical education instructors face, according to the total list of challenges. Having trouble connecting to the internet (54%), not placing enough value on physical education (51%), and problems at home (49%), ranked as the third most important obstacles. In addition to the lack of a private space for teaching (given by 34%) and the incapacity of curriculum advisers to lead the new OLPE curriculum (reported by 36%), 46% of respondents also mentioned a scarcity of gadgets. Similar challenges were highlighted by Chand et al. (2022) in relation to Fiji. Concerning the difficulties of teaching language and literacy online, Konukman et al. (2022) have voiced similar sentiments broken down by school type. Some of these obstacles include not having access to digital resources and not having the right home equipment.

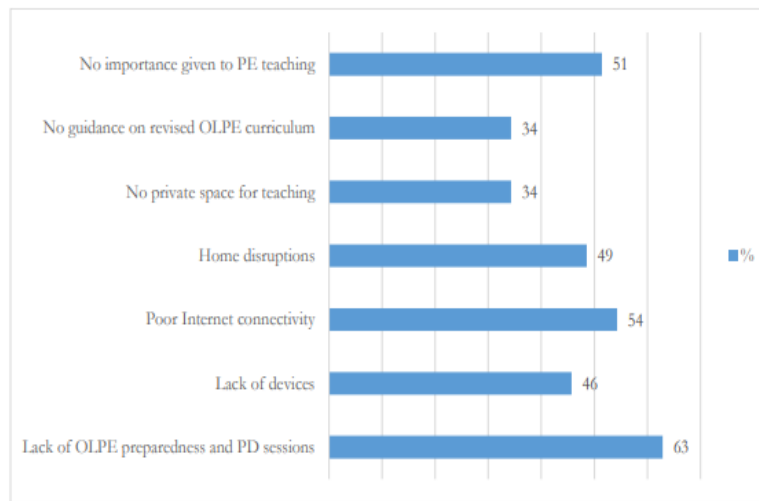


Figure 1 Difficulties Encountered When Instructing OLPE

Nearly two-thirds of those who took the survey felt prepared to teach PE classes online. Konukman et al. (2022) found that many instructors were not concerned about this, which is consistent with our findings. Regardless, the challenges they faced hindered their ability to impart knowledge. Technology has the potential to benefit children by providing them with engaging learning opportunities in physical education and exercise, even if most PE teachers find it difficult to implement (SHAPE America, 2020). This study's results corroborated those of Hill and Valdez-Garcia (2020), who found that new applications may be used to track students' behaviour and progress in learning. The focus of physical education instructors must be on the specific technological tools used in their field. Physical education teachers were left to their own devices to devise effective lessons as the subject is stigmatised (Richards et al., 2018). Physical education teachers may have felt even more alone during the epidemic, which may have driven them to make decisions that affected their pupils' academic performance. Understanding the role of technology and the support it offered in making online language learning and education (OLPE) a viable option for teachers at the time was crucial for preventing technology from turning into a "distraction but rather a support or resource" (Gallagher, 2020, page 4). For example, among the participants, "understanding the possibilities and challenges helps us make a difference in the learning experiences of students" (participant 13) was one interesting comment. These findings corroborate those of previous research that has identified certain challenges faced by educators. Teachers were unsure if they were meeting their students' needs, and they feared the unknown, so they taught in a socially and physically aloof way that prevented them from enforcing student participation (Centeio et al., 2021). Additional challenges to incorporating technology into the classroom included teachers' lack of knowledge about how to do it, students' lack of motivation to use it, teachers' lack of time because of high-stakes testing, teachers' inability to effectively manage their classrooms when students were using computers, and teachers' lack of access to technical support (Hill & Valdez-Garcia, 2020). Another obstacle was the absence of technical assistance. There have been multiple calls for schools to use technology more effectively in the classroom, but so far, schools' efforts to do so have lagged behind technological developments outside of the classroom. Some have speculated that teachers are hesitant to use technology in the classroom because they feel it won't improve physical education (PE) lessons, which is a major problem because PE is already a neglected subject.

Readiness to Teach Online

The assumption that students' academic performance will increase with the widespread use of computers is the bedrock of online learning's readiness and acceptance, according to Davis et al. (1989). Table 2 shows that when looking at how well-prepared teachers were to teach online, men teachers were somewhat better than female teachers in terms of online language and literacy education (OLPE). Age, years of classroom experience, and certificates were other indicators of readiness for online teaching. The teachers in urban(85.7%) and suburban(62.5%) settings were clearly more prepared to teach online than their counterparts in rural(37.5%) and maritime(40%) settings. Teachers in rural areas, and especially those teaching marine subjects, faced more technological challenges, according to research by Chand et al. (2022) and Mercier et al. (2021), which affected their readiness to teach online. What these two sets of researchers found supported this notion. Additionally, it was mentioned that the difficulties of teaching OLPE differed across different types of schools. For some, it

was a lack of suitable hardware, limited internet connection, or device connectivity issues. There were similar results when looking at the gender gap in OLPE instruction; female PETs were less concerned with the topic than male PETs.

Table 2 Educators' Preparedness to Teach Online During the COVID-19 Pandemic

Category	Variable	Yes	No	Total
Gender	Male	16(72.7%)	6(27.3%)	22
	Female	9(69.2%)	4(30.8%)	13
Age	21–30	6(75%)	2 (25%)	8
	31–40	9(69.2%)	4(30.8%)	13
	41–50	7(70%)	3 ((30%)	10
	51–60	3 (75%)	1(25%)	4
School setting	Urban	12(85.7%)	2(14.3%)	14
	Suburban	5 (62.5%)	3 (37.5%)	8
	Rural	3 (37.5%)	5 (62.5%)	8
	Maritime	2 (40%)	3 (60%)	5
Teaching Experience	1–5years	7(70%)	3 (30%)	10
	6–10years	3 (50%)	3 (50%)	6
	11–15years	6(100%)	0(0%)	6
	Over15years	9(69.2%)	4(30.8%)	13
Qualification in PE	Diploma	11 (78.6)	3 (21.4%)	14
	Bachelor	12(70.6)	5 (29.4%)	17
	Postgraduate	2 (50%)	2 (50%)	4

Teacher-Student Online Engagement

In Table 3 we can observe the degree of regularity of the interaction between online instructors and their students. We found that OLPE not only encouraged more time spent conversing between instructors and students, but it also helped students develop more independence. Male PETs have long shared the view of female educators that OLPE training is superior to the more conventional one-on-one approach when it comes to fostering independence. Teachers in the 51–60 age group were constantly engaging with their students, whereas those in the younger age groups were noticeably absent. Rural, suburban, and coastal schools were less engaged than their metropolitan counterparts. Having more qualifications has no effect on student or teacher participation (Table 2). However, teachers with over fifteen years of experience saw greater participation from their online students. Our findings corroborate those of Bryan and Solmon (2012), which found that OLPE classes encourage students to study independently; yet, students still need to show that they can effectively use a variety of technology tools.

Table 3 Teacher-Student Interactions Conducted Online

Category	Variable	Yes	No	Total
Gender	Male	11	11	22
	Female	5	8	13
Age	21–30	2	6	8
	31–40	5	8	13
	41–50	5	5	10
	51–60	4	0	4
School setting	Urban	11	3	14
	Suburban	3	5	8
	Rural	1	7	8
	Maritime	1	4	5
Teaching experience	1–5years	5	5	10
	6–10years	1	5	6
	11–15years	3	3	6
	Over15years	7	6	13
Qualification in PE	Diploma	8	6	14
	Bachelor	7	10	17
	Postgraduate	1	3	4

Teacher Consultation with Parents

The success of home-based online learning depends on teachers and students alike being able to understand and appreciate the roles played by parents and the support they offer. Of those who took part in our survey, 54.3 percent said they never talked to their parents. Regardless, nearly half of teachers (45.7% to be exact) can discuss their students' internet behaviour with their parents or guardians. Based on the data, it was seen that 62.5% of individuals in the 21–30 age group consulted with their parents, whereas the three older age groups had higher percentages of people who did not. Parental consultation was not significantly different across the sexes. However, teacher-parent consultations had a 45.5% higher participation rate among males than females (38.5% vs. 45.5%). The frequency of parent consultations was not significantly correlated with the certifications and experience of physical education instructors. Meeting with parents was more common among instructors with a bachelor's degree, compared to those with less than five years of experience. Furthermore, studies conducted at educational institutions revealed that several teachers lacked the communication skills necessary to engage with parents. Compared to teachers in suburban(37.5%), rural(37.5%), and marine(40%) schools, those in urban schools consulted more often (50%) than those in other types of schools.

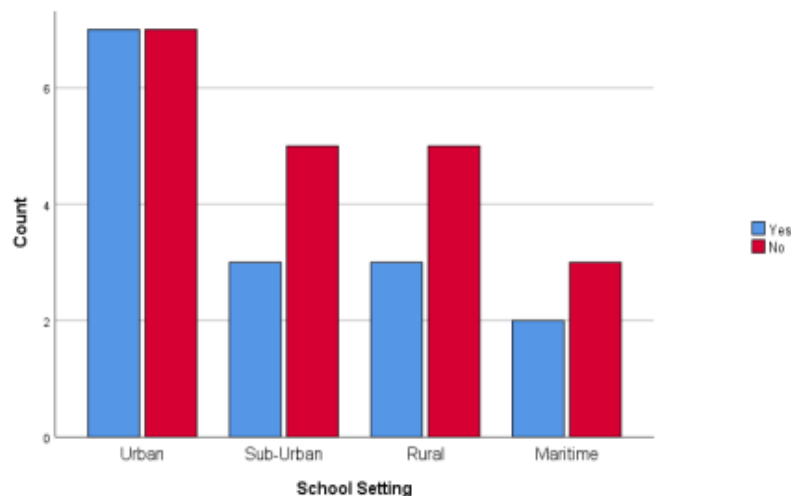


Figure 2 Teacher-Parent Consultation

The importance of parental involvement in their children's education grew as more and more youngsters learnt at home. A proposal was made for a two-way consultation where parents may ask questions of instructors without having to wait for them to answer. Per the information that participant 12 provided, Parents should maintain a careful watch on their children when they are at home to see if they are actively engaging in the online lesson. The best way to fix the student's attendance, Internet access, and academic achievement is for instructors and parents to talk to each other. Because of this, the kid will be able to study.

Assignments and Feedback

When students turn in their work and teachers grade it, they can pick from a number of different online tools. Zoom is the main platform that the majority of instructors have chosen, registering at 80%. They would rather have pupils turn in their work online and receive constant comments. In addition, the Moodle platform was chosen by 28.6% of the participants. The percentage of teachers who used e-mail as a means of communication was 25.7%, while 14.3% used Google Meet, and 2.9% used Viber or Messenger. Our research shows that some teachers have tried to learn more about innovative online tools like Seesaw. Still, some students favoured turning in and collecting paper copies of their work, even when this was an option.

Table 4 Platforms for Online Last-Minute Project Evaluation (OLPE) That Teachers Love

Platform	Response	Frequency	Percent	Cumulative percent
E-mail	Yes	9	25.7	25.7
	No	26	74.3	100.0
Zoom	Yes	28	80.0	80.0
	No	7	20.0	100.0

Google Meet	Yes	5	14.3	14.3
	No	30	85.7	100.0
Viber/Messenger	Yes	1	2.9	2.9
	No	34	97.1	100.0
Moodle	Yes	10	28.6	28.6
	No	25	71.4	100.0

In the course of the discussion, teachers also shared their thoughts on the preferable online platforms for students to turn in assignments and get feedback. Half of the students still preferred utilising Zoom for synchronous online learning when it came time to turn in their work and get comments on how they did. More than that, 36% of the students were really looking forward to finishing their video assignments. Although 33% of people said they were comfortable with and liked Moodle, 30% said they preferred email. Facebook, Managebac, and Seesaw were also mentioned as learning venues by 3% of students. Surprisingly, 3% of students preferred paper-based (hard copy) assessments with comments.

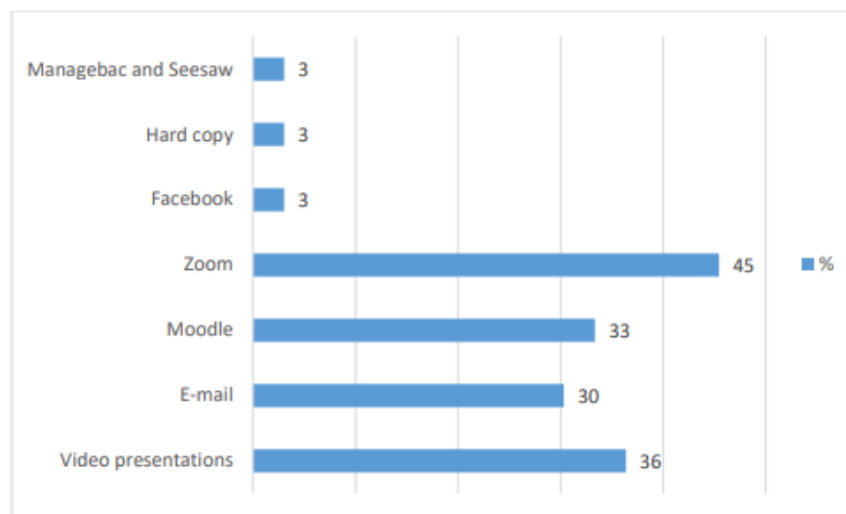


Figure 3 An Examination of the Preferences of Students for Online Learning Platforms by Teachers

Students who have submitted their work successfully received feedback from more than 81% of instructors. The only students allowed to take part in this activity were those who had devices that could connect to the internet. Teachers also talked about the devices their students utilised for online grading and class participation. Most of them communicated mostly through cellphones, laptops, desktop computers, and just old phones. Furthermore, most teachers looked into several alternative OLPE pedagogical strategies from different online resources. That teachers tried to help their students while knowing that they had limitations in areas like learning and completing tasks was a good indicator. Accessible from any mobile device or tablet computer were user-friendly online platforms including Zoom, Blackboard, Canvas, and Google Meet (O'Brien et al., 2020; Quezada et al., 2020), Seesaw and Google Classrooms (Cruickshank et al., 2021), Flipgrid, and YouTube. That way, they could go headfirst into learning new material and honing their existing abilities. Other academics, however, have argued that physical education instructors' abilities to creatively engage their students are crucial to the effective use of these online platforms. You may do this by making good use of synchronous online meetings, being very good with your time, and giving enough examples from real life and constructive criticism.

Conclusion

A new era has begun in the way kids are taught physical literacy, health, and fitness with the introduction of virtual physical education programs. Online physical education offers many positive aspects, such as more accessibility, more flexibility, and the incorporation of technology-driven fitness solutions, but it has also many negative aspects. Some of these features include pupils' lack of enthusiasm, limited physical interaction with one another, inadequate home infrastructure, and difficulties in monitoring and assessing performance. The results of this study show that virtual PE programs rely on several factors to be successful. These factors include teachers' flexibility, students' engagement, resources' accessibility, and the level of support at home. Along with this, it stresses how critical it is for educators to have equitable access to digital

resources and professional development in online teaching methodologies. We may find that a hybrid approach, combining the greatest features of online and in-person learning, is the most effective moving ahead. Incorporating features like gamification, wearable devices, interactive platforms, and personalised training routines can further improve the online PE experience. Everyone with a stake in the school system has to collaborate to make sure that PE, whether online or in a classroom, remains a vital part of students' well-rounded development. Virtual PE can improve traditional PE in significant ways and reach more children in more inclusive and flexible ways, but it can't replace the social and dynamic nature of the real thing. Maintaining investment in research and development as well as backing from the government will be crucial to ensuring its long-term success.

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