Evaluation of College Physical Education Dance Class Online Learning Module during the Covid-19 Pandemic

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Abstract—**This study aims to determine the effectiveness of the online learning module (OLM) in college physical education (PE) dance classes during the covid-19 pandemic. Research is limited relating to this topic. Fifteen participants were enrolled in this study. This descriptive study employed the mixed method approach a combination of qualitative and quantitative data collection and analysis (Creswell & Tashakkori 2007). The mixed-method was used through a survey questionnaire and a semi-structured interview as research instruments to collect quantitative and qualitative data.**

The study showed that students strongly agree that the PE dance OLM is exhibiting a high degree of excellence in content accuracy, design and usability. it effectively engages the user towards learning and it has a potential ability to achieve learning for the users.

Index Terms—**covid-19, dance, online class, online learning module, physical education**

I. INTRODUCTION

The landscape of education has dramatically changed due to the impact made by the Covid-19 pandemic. The outbreak caused schools of all levels across the globe to shut down their campuses so that students could follow social distancing measures (Rusdiana, A., et al. 2020). Following the safety protocol, teaching and learning activities that are usually carried out with face-to-face meetings have turned into virtual meetings in various online learning applications such as Google Meet, Zoom, Moodle, Canvas to name a few. With the endless growth and calibration of technology and the internet, online learning has secured a very competitive position and spot in the academic world which in turn became very useful in this critical period of global medical issues.

In the field of Physical Education (PE), although online education is regarded as a feasible and efficient teaching mode during this pandemic, most teachers reported that online learning in PE was ineffective at fostering motor skill acquisition or increasing physical activity levels (Chan et al., 2021). Online learning in PE, if appropriately designed, can improve physical health, increase socio-emotional resilience, and reduce chronic mental illnesses and health disparities caused by unequal opportunities in physical activity

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participation (Draper et al. 2021). In 2010, the World Health Organization (WHO) recommended that our youth need to participate in daily physical activities at moderate to vigorous intensity level for at least 60 minutes to optimize their health. Cognizant of this, because of the pandemic the Commission on Higher Education (CHED) firmly advocates and encourages the active participation of the individual which could be possibly realized in physical education classes. Through PE, the learner will be helped in caring for their own as well with their family's health and positively influence others. HEI's must continue to serve the needs of learners by realigning their course delivery and development efforts (CHED 2021).

With the demand to be healthy and strong amidst the risks and threats of the virus, dance is essential and suitable in order to resist this global crisis even if we are confined in our homes. There are countless reasons why dance is important to the health and development of our young people. Dance boosts our heart rates, burns calories, builds strength and flexibility, provides expression, and physical interaction. As for our mental health during this pandemic, dance is proven to raise endorphins, reduce cortisol levels and improve our immune system. Utilizing dance in academics also helps students acquire skills that are essential for learning such as creativity, communication, critical thinking, and collaboration. Through the creative process, students are encouraged to use their imagination, collaborate with their peers, and discover multiple solutions to challenges. Depending upon the genre and the intensity sought to be performed, dancing will always be something that is fitness by nature. Thus, it is where the college PE dance online learning module (OLM) was planned and calibrated.

In college PE dance, students rely heavily on observations, staring at their teachers' movements and demonstrations closely. After observation, students rerun what their teachers have done, and they practice diligently. Their physical demonstrations are instantly critiqued by their teachers. College PE dance OLM changes the way faculty teach and the adjustments are particularly more challenging especially for performance - based classes such as dancing. Instructions have undergone notable adjustments in order to achieve optimum learning and proficiency of the student despite the absence of human contact both from student to student and teacher to students' interaction.

In this study, the course is a full online synchronous Pop Line Dance class focusing on popular mainstream or

modern dance steps which generally uses upbeat music in such a way that is likely to be danceable in manner. The genre of the dance routine is a combination of Reggae, R&B, techno, and pop-rock. The course generally aimed to develop the coordination, grace, and rhythmic ability of the student infused with a weekly cardio high-intensity workout program that improves the strength and cardiovascular fitness of every student. Aside from developing students' sense of rhythm and improving their physical well-being, this college dance class likewise addresses the social skills of the students through proper communication with their peers that significantly contribute, especially with the creative dance output to be submitted as the ultimate requirement of the course. PE Dance online class was divided into six components: exercise, dance lesson demonstration, modeling, rehearsal, collaborative work, and presentation ensuring it serves and achieves similar results as the traditional face-to-face class. Canvas is the Learning Management System (LMS) used in this virtual dance class. Researcher-developed instructional materials such as weekly lessons and dance variations including all the dance music which was being used for the class were uploaded to the LMS. Further, a video demonstrating how to properly execute the cardio exercises, safety measures that include suggested warm-up, stretching, and cool-down, plus voice-prompted music that students can listen to while working out were likewise uploaded to the LMS. This served as a guide for student submissions who were not able to attend the synchronous session, while those who attended the class carried out those exercises. This online dance class which was treated and conducted equally to a traditional face-to-face regular class involves demonstration and real real-time performance both by the teacher and the students, students' skill tests, and group collaboration through Zoom application as its main platform. In order to facilitate group rehearsals after their cardio workout and the introduction of the weekly dance lessons which were performed by the entire class first, Zoom breakout rooms then follow. Groupings were identified based on the students' surnames for easier monitoring since surnames were alphabetically arranged respectively. With a class size of usually 45 students, each group is composed of 11-12 members thus generating up to 4 groups in each dance class. Leaders per group were sometimes suggested but usually selected by their own members. However, leaders may have been selected but every member was also encouraged to participate, cooperate, contribute, and be involved in all of the group's tasks and responsibilities. These groups then work virtually inside the breakout rooms that were created so they could interact separately and brainstorm together, review and rehearse as a group then check and help each other with their group performance prior to scheduled skill tests. These small rooms were also intended for their planning and preparation for the creative output since the final requirement of the course is a group performance video submission using the different dance forms learned in class showcasing their creative choreography.

Knowing the quality of online learning in PE is vital since it is undetermined how much longer these practices will remain since the World Health Organization (Reuters 2020) announced that the virus "would never go away". This online learning method will persist even if schools, conform to health protocols and restrictions, and have been granted permission to reopen. Therefore, continuing online learning the of finest quality becomes a challenge. Thus, this study was conceived to examine how online PE transpired during confinement. The purpose of this study is to evaluate the online learning module of college PE in Dance, specifically in terms of quality, usability, and effectiveness.

II. Review of Related Literature

Research regarding online learning modules (OLM) in physical education is very limited. A reason for the lack of research on PE OLM could be the inherent nature of this subject matter. The theoretical component of PE can be taught remotely; however, the physical element has a unique challenge such as the teaching and learning of sports skills, dance, and fitness. Some published research is on blended learning (Kane, 2004; Karp & Woods, 2003). Full online PE courses were piloted in secondary education to study the daily practices of online PE (OLPE) teachers (Williams 2013), perceptions of secondary OLPE teachers (Daum & Buschner 2012), course satisfaction and fitness of secondary face-to-face PE and OLPE students (Futrell 2009), student completion rates and characteristics of the OLPE courses (Mosier & Lynn, 2012), the effectiveness of and student satisfaction in an online course (Rovai, 2002; Smith, Clark, & Blomeyer, 2005). In addition, a college-level study investigated an online weight training course (McNamara, Swalm, Stearne, & Covassin, 2008). The result suggests that there is a limit to how much technology can be used in a weight training class. Similarly, research to assess exercise motivation among college students self-selected into 4 online (OL) and face-to-face (F2F) revealed that there were no significant differences ($p > .05$) in exercise motivation for students across course delivery formats (Sidman, Fiala, & D'Abundo, 2011).

Recent studies on physical education during the COVID-19 pandemic focused on the analysis of online classes (Jieun Yu et al., 2019; González-Calvo, Gustavo et al., 2021; Fierro & Vargas-Vitoria, 2021; Baba Kaya, 2021; Kirbas, 2020). The study revealed that future teachers understand that the teaching of PE has to be carried out face-to-face in order not to lose its meaning, that there are implicit shortcomings in the virtual teaching model, and that there is a greater probability of suffering from teacher stress and disenchantment with the profession when following an online teaching methodology. Equally, a study on the experience, success, and struggles of PE teachers (Centeio, Mercier, Garn, et al., 2021; Mercier, Centeio, Garn, et. al., 2021; Minhyun & Yu, 2021; Lu, Barrett, Lu, 2020; Donitsa-Schmidt & Ramot 2020) discovered that there was an abundance of calls for help in relation to how to best provide quality PE during the COVID-19 pandemic and beyond while many teachers stated simply that their biggest success was "learning how to use technology in PE." Further, the study revealed that all of the participants looked forward to teaching face-to-face physical education because they missed in-person relationships and interactions with their students.

Evidently, the present study contributes to the literature and conversations about OLM in college physical education and sets the stage for further research in teaching PE online. Given the conditions and observations made in other studies, the present investigation presents the use of Dance-Pop in the context of Philippine private higher education.

III. METHODOLOGY

This descriptive study employed the mixed method approach - the combination of qualitative and quantitative data collection and analysis (Creswell & Tashakkori 2007). The mixed-method was used through a questionnaire and a semi-structured interview as research instruments to collect quantitative and qualitative data.

The 24 – item Online Learning Module (OLM) Evaluation Questionnaire which was designed by Goode (2003) was utilized in order to answer the objectives of the study. The 24 – item questionnaire was divided into 3 groups such as 1) quality – the degree of excellence in content accuracy and designs for items 1 to 10; 2) usability, the functionality of the module to engage the user towards learning from items 11 to 17; and 3) effectiveness, the potential ability to achieve learning for the users for item 18 to 24. Furthermore, the 24-item Online Learning Module (OLM) Evaluation Questionnaire makes use of the 4-point Likert Scale where 4 as Strongly Agree, 3 as Agree, 2 as Disagree, and 1 as Strongly Disagree.

Prior to the dissemination of the questionnaire, an online pre-test was conducted with 15 students that did not participate in the study. The pre-test results were subjected to the Cronbach's alpha reliability coefficient test. The reliability results of the scale revealed Cronbach's alpha of .960 for the 10 items on quality, .949 for the 7 items on usability, and .956 for the 7 items on effectiveness. An overall value of 0.95 representing high internal consistency was obtained.

In order to further enrich the data, an online interview was conducted with the following guided questions: 1) What are the concepts that you have learned? 2) What are the skills that you have developed? and 3) what positive attitudes have you gained from the course? Results of the online interview which was transcribed and analyzed thematically were identified. During the entire process, students were properly and carefully guided accordingly.
The Respondents

The respondents involved in this study were college students who were enrolled in their PE – Dance 1st trimester of the academic year 2020 - 2021 from October to February in a private university in Manila. This block section has a total of 15 students enrolled with 7 or 46% female and 8 or 54% male respondents respectively. An announcement on their LMS was posted to explain to the students their participation in the study. An assent form that is downloadable from the university's intranet was also shared in their LMS requesting their consent to be part of this research. Also, eight students were purposely selected for the online interview.

Statistical Analysis

The collected data on the online interviews were analyzed through thematic analysis while Mean and Standard Deviation were utilized for the 24-item Online Learning Module Evaluation Questionnaire (OLM) with the interval range of:

Interval Range	Verbal Interpretation
3.40 - 4.0	(1) SA - Strongly Agree
2.60 - 3.39	(2) A - Agree
1.80 - 2.59	(3) D - Disagree
1.00 - 1.79	(4) SD - Strongly Disagree

RESULTS
Students' Evaluation of Online Dance Class in terms of its Quality

Table 1. Quality - exhibiting a high degree of excellence in content accuracy, design and usability.

The Online Learning Module on Dance…	SD	D	A	SA	Mean	SD
1. Has clear directions on how to complete the module.	0	0	3	12	3.80	0,414
1. Has properly sequenced	0	0	4	11	3.73	0.458
1. Provides a complete demonstration of the concept	0	0	5	10	3.67.	0.488
1. Provides opportunities to practice new concepts and skills	0	0	5	10	3.67	0.488
1. Provides consistent feedback	0	1	3	11	3.67	0.617
1. Content and text are clearly written.	0	0	5	10	3.67	0.488
1. Audio and video used are appropriate	0	0	4	11	3.73	0.458
1. Instruction follows a logical hierarchy of skill and knowledge development	0	0	3	12	3.80	0.414
1. Provides detailed and	0	0	5	10	3.67	0.488

	SD	D	A	SA	Mean	SD
appropriate feedback for the practice opportunities.						
1. Is detailed enough for a student to progress through the instruction	0	0	5	10	3.67	0.488
Quality					**3.71**	**0.395**

It was interesting to note that Table 1 shows, in all items, that students strongly agree that the OLM exhibits a high degree of excellence in content accuracy, design, and usability. Items #1 has clear directions on how to complete the module and #8 instruction follows a logical hierarchy of skill and knowledge development receiving the highest mean of 3.80 or 0.4 ratings. All the same, item numbers 3, 4, 5, 6, 9 and 10 shared a similar result of 3.67 mean or with a standard deviation result of 0.488 with a verbal interpretation of strongly agree. Based on the interview with the students, they may not be good dancers but it was through the clear content of the module with the detailed facilitation of the teacher, the manner of instruction, and how they were guided closely that helped them a lot in learning every routine. Variations or the competencies enumerated were spread evenly where it was helpful and doable especially for those who were non–dancers. Likewise, everyone agreed that the way the lesson was presented was relaxing and refreshing and it was like a breath of air for them from their other academic requirements. OLM provides them more freedom to learn at their own pace as well as maximizing their learning in the comfort of their respective homes. Also, all student-participants agreed that the module was meticulously designed in a way that dancing online will be easy to understand and follow and that the course design was well–prepared and understandable in a way that it will truly facilitate the quality of their learning through the teacher-made videos and music.

During the interview, student respondents, especially those who were not good at dancing revealed that they were able to manage their fears in their online dance class, thanks to the well-arranged teacher-made instructional videos and well-thought sets of dance competencies posted in LMS Canvas including the modifications and adjustments made by the teacher during class. Their reluctance and difficulties were unlocked through the videos since they can open and they can study the lesson any time of the day. All student - respondents agreed when one female student mentioned that the easy access to the dance lesson videos in the OLM made them more self-directed, disciplined, resilient, and motivated individuals.

Table 2. Usability - how a module's functionality effectively engages the user towards learning

The Online Learning Module on Dance…	SD	D	A	SA	Mean	SD
11. Interface is easy to navigate	0	0	5	10	3.67	0.488
12. Navigational options are always available to the user	0	2	5	8	3.40	0.737
13. Layout is visually appealing	0	0	10	5	3.33	0.488
14. Load time is sufficient	0	2	3	10	3.53	0.743
15. Menus, buttons and icons are easily understood	0	0	4	11	3.73	0.640
16. Plug-ins, software, and platform requirements are specified	0	2	3	10	3.53	0.458
17. Hyperlinks and buttons work	0	1	6	8	3.47	0.743
Usability					**3.52**	**0.517**

Table 2 revealed that among the seven (7) items under usability, item #15 "menus, buttons and icons are easily understood" got the highest rating of 3.73 or 0.640 with a verbal interpretation of strongly agree while item #13 "layout is visually appealing" got the lowest rating with 3.33 mean or 0.488 standard deviation with a verbal interpretation of Agree.

The result shows that students had prior knowledge of the LMS they were using in their online PE class. Students were familiar with the easy navigation and functions of the system since it ranked second from the highest with a mean of 3.67. Therefore, they don't encounter many difficulties and technical problems in terms of using the system. However, students are very observant and critical as to how it was presented and prepared for the users in order to be appealing, interesting and motivating thus ranking it the least with a mean of 3.33

Over-all, the result in the criteria of Usability which is 3.52 or 0.517 standard deviation, students strongly agree that the OLM's functionality effectively engages the user towards learning.

Table 3. Effectiveness – potential ability to achieve learning for the users

The Online Learning Module on Dance…	SD	D	A	SA	Mean	SD
18. Has clear and concise learning objectives	0	0	4	11	3.73	0.640
19. Identifies prerequisite knowledge.	0	0	7	8	3.53	0.458
20. Builds on prior concepts.	0	0	6	9	3.60	0.516
21. Has activities, practices or quizzes that reinforce the content	0	1	6	8	3.47	0.507
22. Demonstrates relationships between	0	2	6	7	3.33	0.640

concepts						
23. Is very efficient	0	0	5	10	3.67.	0.724
24. Overall is a very effective learning tool	0	0	5	10	3.67	0.488
Effectiveness					3.57	0.458
TOTAL					**3.61**	**0.43**

Table 4. Overall Evaluation of the Dance Online Learning Module

Level of Agreement	MEAN	S.D.	Verbal Interpretation
QUALITY	3.71	0.395	Strongly Agree
USABILITY	3.52	0.517	Strongly Agree
EFFECTIVENESS	3.57	0.458	Strongly Agree
TOTAL:	**3.61**	**0.43**	Strongly Agree

It can be gleaned from Table 3 that item #18 "has clear and concise learning objectives" received the highest mean of 3.73 or 0.640 ratings which means that the respondents strongly agree as to how the teacher conveys message, command and give instruction for the students to clearly understand the lesson despite it being a virtual class. From the students' feedback during the online interview, all students agreed that the OLM was very helpful, especially for those who have difficulties in dancing. The learning tools, the transition of the lesson from simple to complex, and the readiness of the video where the students can watch and study at any time were very effective. Male students were reluctant at first, yet as they went through with the synchronous sessions, they realized that they can dance as well. They also agreed that their learning in dance was achieved through the guidance of the teacher together with the clear and organized preparation of the OLM.

All the student - respondents agreed that they enjoy working interactively in a virtual set-up with their group mates during rehearsals and preparation for the final output since the class was treated similarly to the traditional face-to-face class. One female student illustrated this: *"Connecting, Interacting, and working with my group mates has never been a problem. Thankful for the breakout rooms that the Zoom application provides us for everything is possible as if that of a face-to-face class."* Analysis of the interview also revealed that all of the respondents appreciate the transition from easy to difficult dance variations. It helps them to gradually practice and improve their skills before the lesson requires a more complex pattern of the dance lesson.

A male respondent declared that "*posting the instructional videos made me learn the routines so much easier and gives me more time to study, practice and master the steps. I also commend how the variations are uploaded both in the form of a video and text, so that we may study it in advance*." Others mentioned that "*immediate and on the spot feedback by the teacher is effective as well.*" All agreed that tasks given, especially major examinations are doable through the teacher leading the online practice or willing to hold one-on-one lessons, breakout room spot-checking and corrections, constant reminders, and early announcements.

It was affirmed by all respondents when one male student mentioned that "*OLM was helpful for beginners like me to learn and catch up the lesson if I missed the synchronous class. It also helps me become more patient. I also appreciate how the music playlist was meticulously chosen in order to alleviate the students' moods and interest while performing during class*."

With an overall mean of 3.61 and positive responses from the students during the interview, PE dance OLM is considered a viable teaching tool for college PE online classes. Students find the Dance OLM useful as the design was created in a way that beginners and advanced students could participate and perform equally. Everyone agreed that it was not just a mere dance class but serves as a breakthrough for themselves as well.

One female respondent shared, "*in this class, I have learned the importance of the concept of form, timing, and energy while dancing. I appreciate how the teacher takes time to assess each and every student during class and give comments about our form when doing certain dance steps or even simply during the warm-up exercises. The form is important because it speaks of our positioning, poise and posture when doing movements Moreover, having the right form can prevent the possibility of sustaining injuries or body pain. Timing is another concept that is very much highlighted and given importance in class. The teacher always talks to the class and ensures that we remember to perform our movements in a timely manner. We should not be too fast or too slow, we must always be in sync with the music. Timing enables us to fully immerse ourselves with the music, it allows us to think less of the steps and to simply let loose and enjoy. Another concept I learned in the course is the energy we must give when dancing. Knowing all the steps of dance will seem irrelevant or pointless if you perform without energy because the projection you apply when dancing sets the tone and the mood of the dance.*"

A respondent further stated that *"we know that dancing can be related to physical fitness and you can make it an exercise routine. It improves your strength and flexibility in your body. However, dancing does not limit only physical capability and entertainment, but can also make you improve yourself and put it to use in our academic life's journey."* Further all respondents agreed that dancing takes time to master and the key to mastering this art is by practicing. One female student explained that "*in just practicing the dance variations, we are developing many traits. You are learning the values of discipline, self-confidence, commitment and work ethics. You just need to put your best foot forward, just like dancing. Also, dancing is not all about yourself but also about others. Teamwork is the value you can learn from dancing with others. Dancing as a group, you and the others should have unity, learn to compromise and be synchronized as you dance. All that I can say is that dancing is not just an art form or a form of entertainment, but also a process of developing your character as you go through life.*"

IV. DISCUSSION AND CONCLUSION

The Covid-19 Pandemic extremely influenced the learning environment of college PE classes. Colleges and universities were impacted in a distinctive way due to the accessibility of platforms for delivery of instruction, availability of resources and environmental differences. Teachers were enforced to make adjustments such as introducing lessons from home combined with a meaningful online learning experience to students.

In this study, the researchers evaluated the online learning module prepared for College PE dance class during this pandemic in terms of quality, usability and effectiveness.

Results obtained from the findings of this study revealed that PE-DANCE OLM is declared significant in quality, usability and effectiveness based on the quantitative data supported by the qualitative data analysis. Based on their responses show that in terms of their rhythmic skills since dance is a performance-based subject, the respondents have greatly improved during and after the intervention. Likewise, shifting from face-to-face online classes has never been a barrier for the students since most of them were techno-literate. Moreover, it was interesting to note that despite being online by nature, a deeper sense of result was uncovered from the findings of this study that positive values were acquired during the duration of their classes.

There may be a number of studies focusing on online teaching in dance or in other subject areas but no similar study has been conducted particularly in Online Learning Module (OLM) used in PE classes specifically at college level. Therefore, an assessment across a broad range of schools would be necessary to test the veracity of this research findings. Also, due to the uncertainty of the Covid-19 pandemic, there must be further research conducted on other OLM methods and strategies for college PE Dance.

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REFERENCES

[1] Baba Kaya, H. (2021). Views of Physical Education Teachers on Distance Education During the Covid-19 Pandemic Period: A Qualitative Study. https://ccsenet.org/journal/index.php/ies/article/view/0/45848

[2] Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. Journal of Computing in Higher Education, 26(1), 87-122. Available at: https://doi.org/10.1007/s12528-013-9077-3. Bolliger, D. U.

[3] Bernard, R. M., P. C. Abrami, Y. Lou, E. Borokhovski, A. Wade, L. Wozney, and B. Huang. (2004). "How Does Distance Education Compare with Classroom Instruction? A Meta-Analysis of the Empirical Literature." Review of Educational Research 74 (3): 379–439. [Crossref], [Web of Science ®], [Google Scholar]

[4] Cavanaugh, C., K. J. Gillan, J. Kromrey, M. Hess, and R. Blomeyer. (2004). The Effects of Distance Education on K-12 Student Outcomes: A Meta-Analysis. Learning Point Associates/North Central Regional Educational Laboratory (NCREL). [Google Scholar]

[5] Centeio, Erin et. al (2021). The Success and Struggles of Physical Education Teachers While Teaching Online During the COVID-19 Pandemic. https://journals.humankinetics.com/view/journals/jtpe/40/4/article-p667.xml

[6] Chan, W.K, Leung, K.I., Ho, C. C., Wu, C.W., Lam, K.Y., Wong, N.L, Chan, C.Y.R., Leung, K.M. & Tse, A.C.Y. (2021). Effectiveness of online teaching in physical education during COVID19 school closures: a survey study of frontline physical education teachers in Hong Kong. Journal of Physical Education and Sport, 21(4), 1622-1628. DOI:10.7752/jpes.2021.04205

[7] CHED. (2020). CHED COVID-19 ADVISORY NO. 3. Retrieved from https://ched.gov.ph/wp-content/uploads/CHED-COVID-2019-Advisory-No.-3.pdf

[8] Creswell, J.W. & Tashakkori, A. (2007). Developing publishable mixed methods manuscripts. Journal of Mixed Methods Research, 1, 107-111, 2007.

[9] Daum, D. N., & Buschner, C. (2012). The status of secondary online physical education in the United States. Journal of Teaching in Physical Education, 31, 86-100.

[10] Donitsa-Schmidt, Smadar & Ramot, Rony (2020). Opportunities and challenges: teacher education in Israel in the Covid-19 pandemic. https://www.tandfonline.com/doi/full/10.1080/02607476.2020.1799708

[11] Draper, C. E., Milton, K., and Schipperijn, J. (2021). COVID-19 and physical activity: how can we build back better? J Phys Act Health 18, 149–150.

[12] Fierro, A., Vitoria, R., Carvalho, R., Fierro, M. (2021). Impact on teaching in times of COVID-19 pandemic: A qualitative study. https://eric.ed.gov/?id=EJ1299272

[13] Futrell, J. (2009). A comparative study of virtual high school instruction versus traditional instruction of high school student outcomes and attitudes in physical education. http://www.learntechlib.org/p/121566/

[14] González-Calvo, Gustavo & Barba-Martín, Raul (2021).The (virtual) teaching of physical education in times of pandemic. European Physical Education Review.

[15] Goode, Christina Marie. (2003). Evaluating the Quality, Usability, and Potential Effectiveness of Online Learning Modules: A Case Study of Teaching with Technology Grant Recipients at the University of Tennessee, Knoxville. PhD diss., University of Tennessee, 2003. Fps://trace.tennessee.edu/utk_graddiss/4291

[16] Islam, N., Beer, M., Slack, F. (2015). E-Learning Challenges Faced by Academics in Higher Education: A Literature Review. Journal of Education and Training Studies, 3(5), 102-112. http://dx.doi.org/10.11114/jets.v3i5.947

[17] Jieun Yu et. al (2019). Analysis of Online Classes in Physical Education during the COVID- 19 Pandemic. https://www.mdpi.com/2227-7102/11/1/3/htm

[18] Kane, J. J. (2004). The dog ate my disk: Teacher and student perspectives of an online personal fitness course. The Florida Alliance for Health, Physical Education, Recreation and Dance Journal, 2, 8-12.

[19] Karp, G. G., & Woods, M. L. (2003). Wellness nutrifit online learning in physical education for high school students, retrieved from http://www.ncolr.org/jiol/issues/pdf/2.2.3.pdf

[20] Kirbas, Sule (2020). The Views of Physical Education and Sports Teaching Instructors on Education in the COVID-19 Period. Journal of Education and Learning.

[21] Lu, Chunlei; Barrett, Joe; Lu, Olivia (2020). Teaching Physical Education Teacher Education (PETE) Online: Challenges and Solutions. A Journal of Educational Research and Practice.

[22] McNamara, J. M., Swalm, R. L., Stearne, D. J., & Covassin, T. M. (2008). Online weight training. https://pubmed.ncbi.nlm.nih.gov/18545193/

[23] Mercier, Kevin, Centeio, Erin (2021) Physical Education Teachers' Experiences With Remote Instruction During the Initial Phase of the COVID-19 Pandemic. https://journals.humankinetics.com/view/journals/jtpe/40/2/article-p337.xml

[24] Minhyun, Kimi & Yu, Hyeonho (2021). Physical education teachers' online teaching experiences and perceptions during the COVID-19 pandemic. https://efsupit.ro/images/stories/iulie2021/Art%20261.pdf

[25] Mosier, B. & Lynn, S. (2012). An initial exploration of a virtual personal fitness course. https://www.westga.edu/~distance/ojdla/fall153/mosier_lynn153.html

[26] Reuters, (2020). 'This virus may never go away,' WHO says. https://www.reuters.com/article/us-health-coronavirus-who-briefing-id USKBN22P2IJ

[27] Rovai, A. (2002). Building a sense of community at a distance. International Review of Research in Open and Distance Learning, 3(1), 1-16.

[28] Rusdiana, A., Sulhan, M., Zaenal, I., & Ahmad, A. U. (2020). Penerapan Model POE2WE Berbasis Blended Learning Google Classroom Pada Pembelajaran Masa WFH Pandemic Covid-19. 1–10.

[29] Sidman, C. L., Fiala, K. A., & D'Abundo, M. L. (2011). Exercise motivation of college students in online, face-to-face, and blended basic studies physical activity and wellness course delivery formats. Journal of American College Health, 59(7), 662-664.

[30] Smith, R., Clark, T., & Blomeyer, R. L. (2005). A synthesis of new research on k-12 online learning. Naperville, IL: Learning Point Associates.

[31] Taylor, R. W. (2002). Pros and cons of online learning – a faculty perspective. Journal of European Industrial Training, 26(1), 24-37. http://dx.doi.org/10.1108/03090590210415876

[32] Williams, L. (2013). A case study of virtual physical education teachers' experiences in and perspectives of online teaching. https://digitalcommons.usf.edu/etd/4962/