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Learning Effectiveness and Satisfaction Self-report of College Online Physical Education (OLPE) Students in the Philippines in Time of COVID-19 Pandemic

Jerrwin C. Aguinaldo[1], Alvin George C. Cobar[2], Heildenberg C. Dimarucot[3,4]

[1]De La Salle University, Department of Physical Education, Manila, Philippines, [2]Ateneo de Manila University, Loyola Schools Physical Education Program, Quezon City, Philippines, [3]San Beda University Manila, Human Kinetics Department, Manila, Philippines, [4]Far Eastern University, Department of Graduate Studies and Transnational Education, Institute of Education, Manila, Philippines

Abstract

Physical Education was among the badly hit courses as different countries implement systemic quarantine to mitigate the spread of COVID-19. The Philippines is not spared by this measure, migrating the education system to remote and online methods. Pursuing schools and instruction during a lockdown, this study intends to explore how the online learning implementation process is perceived and how different factors play in this unprecedented educational climate. One thousand four hundred four Physical Education students (N=1404) participated in an online survey using a modified OLQ-TLP questionnaire, comprising 11 categories of 42 quality indicators namely: Instruction (I), learning content (LC), course design (CD), knowledge acquisition (KA), ability to transfer (ATT), learning support (LS), social presence (SP), learning platform (LP), instructor interaction (II), learner interaction (LI) and learner satisfaction (L-Sat). Results showed student satisfaction reports outside the capital are significantly lower than their counterparts in the capital. Female students reported significantly higher satisfaction scores than males in the Instruction, Learning Content, Course Design, Knowledge Acquisition, and Ability To Transfer categories. Using One-way ANOVA, findings also revealed significantly low satisfaction reports as the students aged. Lastly, Knowledge Acquisition, Learner Interaction, and Ability To Transfer were strongly associated with overall learner satisfaction reports, validating previous reports that human-to-human interaction is a strong indicator of online learning satisfaction. While hybrid education is looming and here-to-stay post-pandemic, further studies on how students learn better outside the classroom are promoted, especially in countries with educational equity interests like the Philippines.

Keywords: *online learning, physical education, learner satisfaction*

Introduction

Coronavirus Disease 2019 (COVID-19) outbreak brought by the SARS-CoV2 has translated into a significant educational crisis with the implementation of massive closures of colleges and universities (Alvárez, 2020). The numerous announcements of schools' temporary closure have impacted around a billion learners worldwide. In the Philippines, closures have affected not only students' academic skills acquisition but aggravated the country's pre-pandemic sedentary problem. Trailing from South Korea, Philippines is among the largest proportion of children who are physically inactive having less than an hour of exercise per day, as revealed by the

Correspondence:

J.C. Aguinaldo
De La Salle University, Department of Physical Education, Taft Avenue, Manila.
E-mail: jerrwin.aguinaldo@dlsu.edu.ph

World Health Organization (2019). This report has called for the need to oversee how physical activity, being a contributor to immune health (Lowder et al., 2005; Hojman et al., 2011), can be maintained especially during the time of pandemic when movement and access were restricted with the cessation of formation institutions.

Sallis et al. (2021) recently showed how meeting physical activity (PA) guidelines can reduce the risk of having severe COVID-19 symptoms among unvaccinated adults and promoted them as support in the ongoing pandemic. Physical education beyond the walls of closed school buildings is demonstrated to be imminent by communicating and practicing the values of PE effectively (Jeong & So, 2020). Physical activity programs were seen to be inclined toward engagement, requiring effective pedagogies in dealing with the restrictions brought by COVID spread mitigation (Kopcakova et al., 2015; Jamiai, 2021). Appropriately designed program also impacts reducing health disparities caused by unequal opportunities for PA participation (Draper, Milton, & Schipperijn, 2021). The need for physical education has led the Society of Health and Physical Educators (SHAPE) America (2018) to communicate that online physical education (OLPE) should serve the same needs and achieve the same results as traditional, in-person PE in time of restrictions (Daum, 2020).

As the degree of pandemic restriction progress, rightful access to quality physical education (QPE) became a major consideration as professionals and experts see OLPE as directly identical to, and not only as an alternative to in-person instruction. UNESCO newly (in De Coning & Keim, 2021) published a statement about QPE stating that all students should have equitable access to a well-balanced and inclusive curriculum, which is the foundation of quality PE. Learning effectiveness, access, learner, and teacher satisfaction are among the quality pillars of Online Learning Consortium's framework and are highly predictive of the quality and outcome of online courses (Stickney et al., 2019). Pillars are related to student attitudes toward education experiences and achieved education outcomes.

Challenges in Migration to OLPE

With the developing pandemic, educational institutions worldwide have embraced the inevitable teaching using virtual and remote approaches to replace teacher interaction in receptive learning (Lee & Rha, 2009). PE teachers were not spared to using technology for remote instruction and reported learning along with its implementation (Mercier et al., 2021). Instructors across different specializations were even unprepared in dealing with this abrupt migration issue as limited tools and retooling were provided to enhance online skills, especially higher educational professionals handling undergraduate or postgraduate programs. This shift in the new mode has inevitably increased teachers' workload as institutions experienced the method for the first time (Chan et al., 2021). Without the physical presence of the PE teacher, for instance, challenges in guiding students to engage in healthy levels of PA and fitness while fostering student enjoyment of those activities remained present. This synthetic form of formation has highlighted by Buschner more than a decade ago (2006) about OLPE being "in a box" that includes sophisticated sound, lights, images, and words—but not physical education in its previous form.

While online education was regarded as feasible, some departments have not fully embraced its advantages. A cultural change crisis in the academe blossomed as some specialized subjects cannot fully maximize the new approach the same way they do in traditional face-to-face classes. The implementation of fully online courses posed a different climate due to the lack of available evidence-based best practices (Yu & Jee, 2021). The extended domains of performance-based courses such as PE allowed school and university administrators to face challenges in training and retooling their faculty in online instruction pedagogy (Moralista & Oducado, 2020).

Being in the peripheries has also influenced school's experiences with remote PE instruction (Mercier et al., 2021). Most teachers reported that OLPE was ineffective at nurturing motor skill acquisition or increasing the physical activity levels of students (Chan et al., 2021). Likewise, the majority of students reported they are more satisfied with face-to-face learning methods than with online learning, and that they see e-learning as a supplement to face-to-face instruction rather than a replacement (Jamiai, 2021). Student learning motivation was found to be unmatched with the way online classes were managed. Methods employed are largely traditional, alongside the different barriers that hinder students to participate in physical activity specifically in internet access, risk of injury, type of residence and the most dominant is, lack of resources (Surahman, 2020; Puen et al., 2021).

Paradigm shift experienced by teachers resulted in various obstacles as mentioned, shifting how students perceived learner satisfaction peri-pandemic. The impediments significantly impacted students' motivation and participation during the online learning experience and showed demands on behavioral and emotional rather than cognitive engagements (EL-Sayad, Md Saad & Thurasamy, 2021). With face-to-face classes in PE unlikely to happen soon, and the impending long-term integration of hybrid approaches post-pandemic, emphasis on human-to-human interaction activities as a feature of remote learning programs will likely to be a game changer. Physical Education, is not just a physical activity course; it encourages interaction, collaboration, and cooperative learning with supportive environments (in Lederman, 2017). Online learning classes, though remote in nature, provide students with a comfortable setting to promote responsibility, self-confidence, and positive attitudes among students (Jamiai, 2021; EL-Sayad, Md Saad & Thurasamy, 2021).

With the recent development in the country's perspective on fitness as the pandemic continues, PE is now being considered in schools as an essential subject as it addresses the prolonged sitting time of learners, aggravating the adverse effects on their health, peri-pandemic. Quality OLPE serves students to be on track with their physical activity in keeping a healthy body even they are in the comforts of their home. The quality of PE classes being held online is a recurring issue, for this will positively or negatively affect the student's well-being during the pandemic. The rationale of the study is to establish and contribute to growing data on hybrid physical activity for post-pandemic applications, as schools catch up from physical activity debt due to the pandemic. The researchers aim to determine the quality of instruction and learning in online PE is necessary. Particularly in this study, they aimed to examine how learners from higher education institutions were satisfied in the implementation of online learning, applied to physical education courses using forty-two quality indicators. With the hybrid type of education is becoming imminent post-pan-

demic, analysis of factors from this investigation may institute the foundation for the future of physical education instruction, using exclusively reports and perspectives of students.

Methods

Research Design

This study utilized a descriptive, cross-sectional research design to identify the quality of online distance learning modality as perceived by the students as well as their teachers. A cross-sectional descriptive survey determines how often, broadly, or severely a particular variable occurs within a given population. It adopted a data-gathering procedure involving the use of a questionnaire, adapted to an online form.

Sample and Data Collection

Participants were purposively recruited to provide responses reflecting their experiences in the conduct of online PE. One thousand four hundred four (N =1404) students aged 17-25 years, from higher education institutions from the country's capital and outside the capital participated in the survey. Students were grouped into age groups of 17-19 years (N=1043) or junior group, 20-22 years (N=343) or senior group, and 23-25 years (N=18) or the residency group. Screened respondents have enrolled students who have taken a Physical Education subject such as physical fitness, dance, individual/dual sports, and team sports, in an online distance learning modality, using learning management systems including Blackboard, Canvas and Microsoft Teams.

Procedure

In the collection of data, pertinent requests and documents were presented to HEI program chairs, with regards to the facilitation of online survey. Upon ethical certification, dissemination of the online form was permitted and facilitated in the most standardized manner in the implementation of online Physical Education. Gathered responses for 10 days were processed, prepared quantitatively through central tendencies and statistical analysis, with the aid of visual presentations as well. For a more in-depth study, these data were linked to existing literatures and previous findings.

Instrumentation and Data Analysis

The research instrument was organized into two parts – pre-response section and satisfaction with online learning – using same satisfaction scales using the Online Learning Quality index based on Teachers and Learners Perceptions (OLQ-TLP).

- Pre-OLQ-TLP Section – section includes the study information consent and the privacy agreement in the first part, and demographic information form containing gender, age group, and school location.
- Modified OLQ-TLP Online Form – the researchers modified and transformed into an online form, a questionnaire used in a previous study (Gomez-Rey, Barbera & Fernandez-Navarro, 2016) measuring learning effectiveness, access, and student's satisfaction. The questionnaires have 42 quality indicators in 11 categories for students and faculty namely: instruction (I), learning content (LC), course design (CD), knowledge acquisition (KA), ability to transfer (ATT), learning support (LS), social presence (SP), learning platform (LP), instructor interaction (II), learner interaction (LI) and learner satisfaction (L-Sat). The 11 categories, covering three of the Sloan-C quality standards, were scored with a four-point Likert scale, used to calculate the OLQ-TLP index.

Statistics

Mean score analysis was done using a T-Test and One-way ANOVA for cross-sectional differences at $p<0.05$, and Pearson Correlation was used to explore associations in relation to learner satisfaction to online Physical Education with $p<0.05$. The statistical program SPSS 26 was used for data processing (Statistical Package for Social Sciences, v26.0, SPSS Inc., Chicago, IL, USA).

Ethical Considerations

Participants were informed and oriented about the nature, risks, and benefits of their voluntary participation in the study. They were advised to withdraw from the study at any time without any sanction if they decline to participate. Furthermore, all responses will be kept confidential with no personal, identifiable information associated with the respondents included in any reports of this investigation. The study was cleared by the University Research Ethics Board of Polytechnic University of the Philippines on 18 November 2021.

Results

Figure 1 shows a visual discrepancy between the self-report of college students in the capital and outside the capital, with scores in the capital higher in all categories. Social Presence variable is seen to have the highest satisfaction scores in both

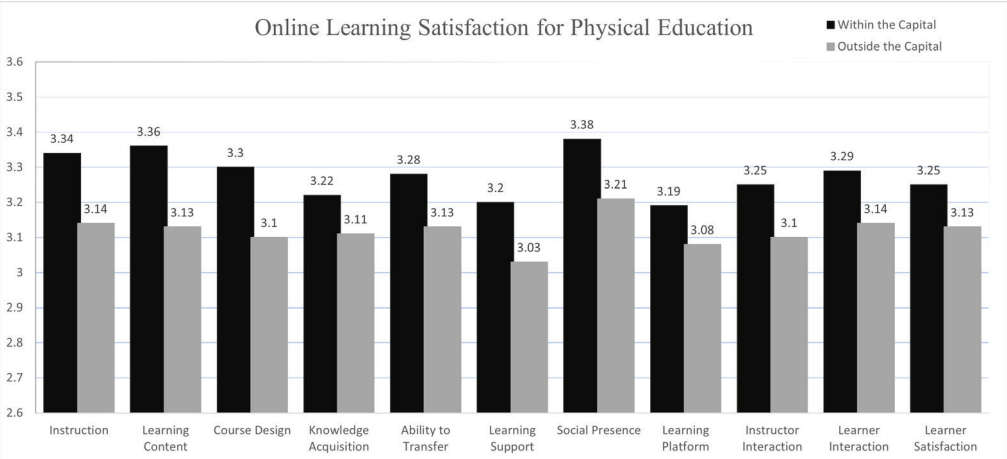

FIGURE 1. Comparing mean scores of 11 variables

location groups. Learning Support and Learning Platform of students outside the capital were reported to have the lowest mean scores with 3.03 and 3.08 respectively as presented in Table 1. Distinction between student scores is seen to be high in the Learning Content variable with a mean difference of 0.23.

Results show statistical differences between the two location groups with t scores significant at p<0.01. Presented also in Table 1, comparing student perception according to sex was also investigated and showed significant differences between males and females in the Instruction, Learning Content, Course Design, Knowledge Acquisition, and Ability To Transfer variables, with females exhibiting higher scores than males. While not presented in the table, there is a significant difference at p < 0.01 in perception among students and teachers in the capital in the category of Instruction with a t score of 2.95.

Table 1. Comparing differences using independent T-test

	Difference in Student Location (Within and Outside the Capital)			**Difference in Sex**		
	p	*t*	Mean Difference	*p*	*t*	Mean Difference
Instruction	0.000	5.83**	0.20	0.044	-2.01*	-0.08
Learning Content	0.000	6.62**	0.23	0.006	-2.75**	-0.11
Course Design	0.000	6.09**	0.21	0.032	-2.15*	-0.08
Knowledge Acquisition	0.002	3.12**	0.11	0.012	-2.53*	-0.10
Ability to Transfer	0.000	4.41**	0.16	0.043	-2.02*	-0.08
Learning Support	0.000	4.12**	0.17	0.119	-1.56	-0.07
Social Presence	0.000	4.81**	0.17	0.114	-1.58	-0.06
Learning Platform	0.001	3.47**	0.12	0.239	-1.18	-0.04
Instructor Interaction	0.000	4.23**	0.15	0.260	-1.13	-0.04
Learner Interaction	0.000	4.40**	0.15	0.154	-1.43	-0.05
Learner Satisfaction	0.001	3.33**	0.12	0.191	-1.31	-0.05

**significant at 0.01
*significant at 0.05

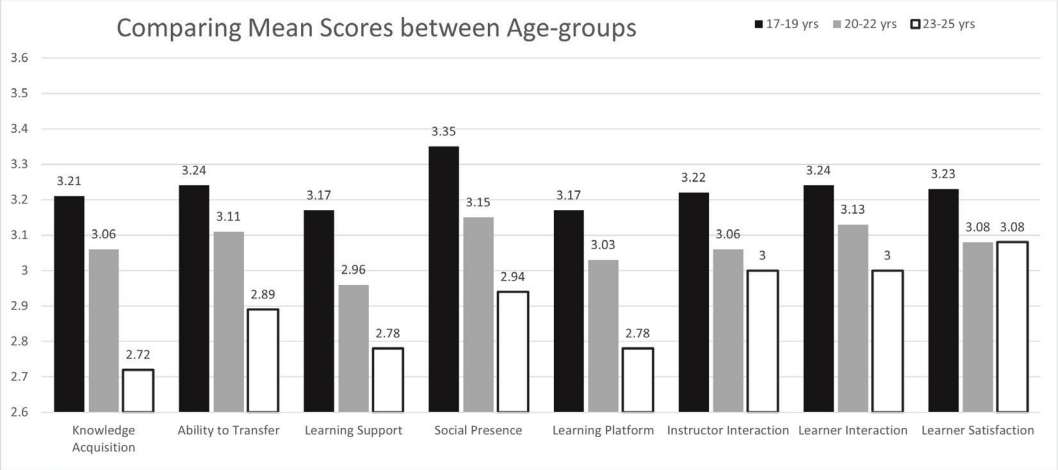

FIGURE 2. Comparison of mean scores between age groups

In the analysis of age groups, Figure 2 shows the variation in self-report scores of students. It is recognized that students in the residency (older) age group (23-25 years) exhibited lower mean scores compared to their younger counterparts. Mean difference of the senior (20-22) and residency (23-25) groups in Knowledge Acquisition at the greatest with 0.34. The youngest student-group (junior group) also possessed high agreement scores in all categories with the highest in the

Table 2. Age-group self-report analysis using One-way ANOVA

	Mean Square Between Groups	**F**	**p**
Instruction	4.61	11.03**	0.000
Learning Content	5.96	13.98**	0.000
Course Design	7.63	18.78**	0.000
Knowledge Acquisition	4.75	11.40**	0.000

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Table 2. Age-group self-report analysis using One-way ANOVA

	Mean Square Between Groups	F	p
Ability to Transfer	3.16	7.71**	0.001
Learning Support	6.45	10.77**	0.000
Social Presence	5.85	12.66**	0.000
Learning Platform	3.68	9.06**	0.000
Instructor Interaction	3.59	8.25**	0.000
Learner Interaction	1.93	4.51*	0.011
Learner Satisfaction	3.30	7.83**	0.000
**significant at 0.01 *significant at 0.05			

Social Presence variable with 3.35. Low scores in Learning Support are consistent across age groups. Statistical analysis using ANOVA in Table 2 shows mean differences across the 3 age groups are significant at $p<0.05$ in LI and at 0.01 for the rest of the categories.

Table 3 presents the interrelation between the 11 categories of quality indicators, with attention to learner satisfaction. Instruction-Course Design and Ability to Transfer-Knowledge Acquisition categories have the strongest correlation with r = 0.79. In relation to Learner Satisfaction, KA, LI, and ATT have the highest association with r values of 0.74, 0.73, and 0.72 respectively.

Table 3. Pearson correlation analysis of variables

	Quality Indicator Categories (OLQ-TLP)									
	LC	CD	KA	ATT	LS	SP	LP	II	LI	L-Sat
I	0.78	0.79	0.72	0.75	0.67	0.70	0.68	0.68	0.66	0.70
LC	-	0.78	0.73	0.76	0.67	0.71	0.67	0.68	0.66	0.70
CD	-	-	0.75	0.77	0.69	0.72	0.69	0.71	0.68	0.72
KA	-	-	-	0.79	0.65	0.69	0.71	0.69	0.67	0.74
ATT	-	-	-	-	0.68	0.73	0.70	0.71	0.71	0.72
LS	-	-	-	-	-	0.70	0.65	0.65	0.64	0.64
SP	-	-	-	-	-	-	0.68	0.71	0.71	0.71
LP	-	-	-	-	-	-	-	0.71	0.70	0.70
II	-	-	-	-	-	-	-	-	0.71	0.71
LI	-	-	-	-	-	-	-	-	-	0.73

Note: I - Instruction, LC - Learning Content, CD - Course Design, KA - Knowledge Acquisition, ATT - Ability To Transfer, LS - Learning Support, SP - Social Presence, LP - Learning Platform, II - Instructor Interaction, LI - Learner Interaction, & L-Sat - Learner Satisfaction

Discussion

Capital vs. The Peripheries

The heterogeneous state of Physical Education quality in the Philippines posed variations on how the program is implemented, especially now that the country is facing remote methods of teaching and learning. Dominating issues on performance-based courses like Physical Education include the availability of facilities for physical activity is defined by the features of the locale. Another limiting concern is the availability of professional development in the peripheral regions, where access to continuing development and up-to-date training courses is distorted by the concentrated training institutes in the city capital. This significantly low satisfaction indicator scores among students in the peripheries are related to the findings of Mercier et al (2021) showed less effectiveness report during stay-at-home learning. This, of course, may go along with professional competency factors among PE instructors, specifically on the effective delivery by their sufficient knowledge in information technology.

The significant difference between genders, particularly in physical activity participation and perception has always been in the discussion due to physiological and anatomical distinctions. There was still an imbalance in opportunities for participation between genders, and expectations for male participants remain higher. Aside from the physical structure, gender influences motives for participation, affecting the dynamics how satisfaction differs across genders. For instance, in the study of Kopcakoya et al (2015), male participants focused on physical and health as motives while social motives are more dominant among females. In most categories in this study, females show greater learner satisfaction even physical activity participation is restricted. The mechanism behind gender and sexual distinction is attributed to psycho-physiological differences, affecting motives and exercise value propositions. This finding validated Kopcakova pertaining to the diminished physical engagement during online learning instruction.

On the side of the instructors, low satisfaction in the capital region showed how the remote methods highly contrasted on-site learning with how they perceive themselves as restricted in the delivery of their instruction potentials. The feeling of

disconnection and lack of technology management (Moralista & Oducado, 2020), and perceived generally to be low and difficult by frontline PE teachers. As described by Chan et al (2021), only 3.6% of participants did not report difficulty during online teaching, and mostly reported lack of practical skills on it.

Age-group Cross-section

With a long remote learning implementation, age group plays an important factor on how students perceive instructional activities and interventions. Particularly to students with on-site Physical Education experience, past outlooks are already in place as they go through the online Physical Education modality. Consistent with a previous study (Jamiai, 2021), older age-group learners prefer hybrid education, if not on-site, for their schooling, affecting their low reception of satisfaction and agreement. This contradicts Tankari's (2012) findings on purely online modality without the conditions brought by the pandemic. Surahman (2020) identified access to resources and lecturer-student attachment as a prime sources of dissatisfaction, and important aspects in addressing student-specific needs during online learning.

Learner Satisfaction

Quality indicators of the OLQ-TLP can be a tool in improving the delivery of online PE instruction. The intra-relation of the different categories helps in specifically address learner satisfaction, and how these indicators are perceived by students. The link between learner interaction, and student-instructor guidance to the satisfaction and dissatisfaction of students can be traced in previous studies (Surahman, 2020) and how social influence plays a big role in online physical activity participation (Puen et al., 2021). Beyond satisfaction, interactive courses even exhibited higher achievement in critical thinking learning (Lee & Rha, 2009). The uniformity of these current findings with discoveries in the past about remote learning during the COVID-19 pandemic suggests the increased integration of social and learner interaction, highlighting the humanistic rather than digital nature of learning, as educational satisfaction is strongly influenced by behavioral and emotional engagement (El-Sayad, Md Saad, & Thurasamy, 2021), and not cognitive engagement. This calls for the revision of learning programs, considering the integration of personal teacher-learner connections and interactions in the pedagogy of content, particular and limited to higher education students.

Conclusion and Recommendations

In time of the COVID-19 pandemic, the Philippine government has put faith in quarantine policies to mitigate the increasing number of infections. This led to the suspension of on-site schooling and depended on remote modalities in training and teaching students, urging schools to expand and take advantage of the use of technology and resources in implementing online learning. Satisfaction self-report using OLQ-TLP showed significant discrepancy affecting students in the peripheral regions to be less satisfied. Male students also felt the impact of this instructional migration specifically in teachers' instruction, acquisition and application of knowledge, content, and the design of the college Physical Education courses. Older students who were used to the on-site methods were also dissatisfied more compared to the younger students. This dissatisfaction is associated with perceived low acquisition and application of knowledge in PE, and the demand for increased learner interaction. While the study was done with a substantial number of samples, data collection can be better done in a more controlled and standardized manner. The findings of this study are hoped to be used in developing online instruction of performance tasks in schools, and improve hybrid education systems for stability, as we face pandemics in the future.

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Conflict of Interest
The author declares that there is no conflict of interest.

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