

ORIGINAL SCIENTIFIC PAPER

Emergency remote learning - the experiences of higher education Physical Education students

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Abstract

The impact of Covid-19 caused significant disruptions to student learning, where online delivery and assessment represent a critical consideration for physical education teacher education (PETE). The Covid-19 pandemic posed a problem with sectoral disruption in higher education, sport, and physical activity. Students specialising in Physical Education (PE) had to experience a temporary shift of instructional delivery in the practical modules to an alternative delivery mode. The improvisation and rapid conversion of delivering learning activities were purely experimental to facilitate student learning. There is a general apprehension about online learning for students in PETE, most notably, the absence of face-to-face education through movement that is difficult to replicate digitally. Emergency remote learning engendered questions and challenges regarding pedagogical approaches. Lecturers explored the effectiveness of emergency remote learning through student experiences. Descriptive research was conducted, following a mixed-method approach to understand students' experiences, perceptions, and challenges. 140 students specialising in PE completed an online questionnaire. The quantitative data were analysed using the statistical package for the social sciences programme, and the qualitative data was thematically analysed. The majority of the students feel they have successfully reached the outcome of each module respectively. The availability of online class recordings assisted students in their self-paced approach to learning. Collaborative learning was preferred only if the lecturer was involved, as it seemed a significant challenge when student-driven. A PE programme needs a face-to-face approach and can benefit from a blended teaching approach. Educators transitioning suddenly to remote operation can consider adopting a similar pedagogical approach.

Keywords: *emergency remote learning, higher education, physical education, physical education teacher education, student experiences*

Introduction

The impact of the Covid-19 global lockdown caused significant disruptions to student learning, assessment, and professional qualifications (Burgess & Sievertsen, 2020), where online delivery and assessment represent a critical consideration (Dymont & Downing, 2020). The Covid-19 global pandemic posed a particularly acute problem for sports. Universities were closed with the hard-national lockdown in the Republic of South Africa (RSA), starting on 23 March 2020 (South African Government, 2020). Education undergraduate students specialising in Physical Education (PE) had to experience a temporary shift of instructional delivery in the PE practical modules to an alternative delivery mode

due to the crisis circumstances. Emergency remote learning (ERL) involves using fully remote teaching solutions for instruction that would otherwise be delivered face-to-face or as blended or hybrid modes that would return to the original instructional format once the crisis or emergency has ended. The primary objective in these circumstances is not to re-create a robust educational ecosystem but rather to provide temporary access to instruction and instructional support in a manner that is quick to set up and is reliably available to students during an emergency or a crisis (Hodges, Moore, Lockee, Trust & Bond, 2020).

ERL posed several questions and challenges to the lecturers involved regarding their pedagogical approaches. The lecturers

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were concerned about whether students engaged critically with the modules' content, whether the teaching and learning were effective, and, most importantly, whether students were adequately prepared for their careers as teachers. This paper explores undergraduate students' experiences in ERL of PE practical modules. It is significant to state the vast distinction between the normal type of effective online instruction and ERL that which we are doing in a hurry with bare minimum resources and scant time as the delivery of PE teacher education (PETE) through online learning is a contentious discussion regarding the implications for producing quality, well-rounded graduates (Goad & Jones, 2017). Effective online learning results from careful instructional design and planning, using a systematic model for design and development (Branch & Dousay, 2015). Central to the concern of the difference between ERL and online learning is the experiential nature of teaching and learning in PE (Quennerstedt, 2019), specifically the importance of pre-service teachers developing knowledge and skills through connected face-to-face experiences. Learning is social in nature (Molleman, van den Berg & Weissing, 2014). The value of social interaction is embedded in collaborative learning and engagement between the students (Laal & Laal, 2012). Vygotsky's (1978) well-established collaborative theory has a critical role in effective PETE programme delivery, specifically to ensure that pre-service teachers within their academic and professional careers attain higher-level thinking and preserve information for longer (Richards et al., 2020). The mode of delivery changed; however, the learning outcomes remained the same during the transformation in the PE programme. The experiment to transform the instructional mode of the pedagogical approach for it to become digital education was meant to be a temporary shift from the standard methods of teaching.

During ERL of the PE practical modules, all completed assessments were uploaded by the students to the higher education institution's (HEI) learning management system (LMS) and assessed online by the lecturer. Most of the evaluations were completed collaboratively, with groups of students working together. The lecturers incorporated video creation in the assessments to overcome some of the PE practical modules' challenges and ensure that the student's online learning experience would be enhanced. Students video recorded themselves applying sports training principles in their video demonstration and uploaded the videos using the LMS, google drive, or YouTube channels to receive feedback from the lecturer and their peers. In other instances, students were given different topics to research with some actual content and guidelines, then asked to create a video about their specific topic and share it with other students. The videos were used in the assessments as a means of scaffolding student progress in conjunction with other assessment methods. These assessment methods included students engaging with content and completing multiple-choice questions; other assessment activities also included students creating podcasts or narrated presentations focusing on physical activities that could be used to improve technical skills in the respective sports. Furthermore, the guidelines and the assessment criteria were discussed with the students,

which guided them in completing assessments. Collaborative online feedback sessions were scheduled after evaluations were completed, enabling the lecturers to minimise individual queries after the assessments were graded.

This research has two objectives to reach: 1) Whether teaching and learning were effective during ERL to develop the skills and knowledge students need to succeed in work, life, and citizenship in the 21st century; and 2) To explore the students' experiences during ERL. The findings and results of our study may be especially relevant for other lecturers since they can consider adopting a similar pedagogical approach.

Methods

Research design

To understand the experiences, perceptions, and challenges of the undergraduate students regarding the ERL of the PE practical modules, descriptive research was conducted, which involved a mixed-method research design (Kumar, 2019) and therefore included both quantitative and qualitative measurements (Thomas, Nelson & Silverman, 2011; Creswell, 2015). The rationale for choosing the mixed methods research approach for this study was to broaden the perspective of the study and enhance the accuracy of the findings and interpretation of the data. The study was conducted eight months after implementing ERL at an HEI in Pretoria, South Africa, for the first time.

Ethical clearance

All relevant people, committees, and authorities were consulted, and the principles guiding this study were accepted before commencing the research. To ensure objectivity and transparency in this research and ensure accepted principles of ethical and professional conduct, ethical clearance was received from an HEI in Pretoria, South Africa.

Participants / Respondents

The respondents consisted of 140 undergraduate education students specialising in PE at the HEI in Pretoria. All the students experienced ERL as a teaching and learning mode of instruction for the first time. The students were enrolled in three different PE practical modules, of which 2% were students enrolled in the practical soccer module, 26% the students enrolled in the motor development module, and the rest of the students were enrolled in the athletics practical module.

Data collection

An online questionnaire was used to collect data from the students enrolled in the PE practical modules (Singh, 2017). The questionnaire consisted of three closed - and one open-ended question. The measure of reliability was calculated using the Cronbach alpha scores of each question of the questionnaire. The reliability analysis (Table 1) was determined by using a questionnaire comprising 3 items. Cronbach's alpha showed the questionnaire to reach acceptable reliability, $\alpha = 0.36$. Most items appeared to be worthy of retention, and no items were considered for removal (Bonett & Wright, 2015).

Table 1. Reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.359	0.371	3

The first question on the extent to which the module outcomes of PE practical modules were achieved was measured according to a 5-point Likert-type scale. The second question was related to a practical module's teaching and learning preference and was measured according to the 3-point Likert-type scale. The

third question was based on the assessment method preference for a practical module and was measured according to the 3-point Likert-type scale. The fourth question was analysed qualitatively as it was an open-ended question that focused on the students' experiences, perceptions, and challenges of ERL.

Data analysis

The SPSS (Statistical Package for Social Sciences) was a comprehensive statistical programme used to score and analyse quantitative data (Bryman & Cramer, 2009). The data was analysed using SPSS to determine the standard deviation and arithmetic mean. The qualitative data was analysed using thematic analysis. Thematic analysis is the most widely used qualitative approach to analyse data or information. It identifies and provides meaning and insight into the data (Braun & Clarke, 2012). In this study, the analysis methods were used for statistical and thematic analysis to have a broader perspective of the meanings and experiences drawn from the data.

The thematic analysis has enabled us to understand students' diverse experiences, perceptions, and challenges. This approach

allowed the researchers to understand the students' assessment method, teaching and learning preferences, and challenges and opportunities to accelerate innovation concerning ERL and improve the pedagogical approach relevant to ERL.

Findings

The descriptive statistics are based on the mean, standard deviation, and percentages of the response from quantitative data. The results are presented based on the (1) extent to which the module learning outcomes were achieved, (2) teaching and learning preference for a practical module, and (3) assessment method preference for a practical module of ERL. Table 2 provides descriptive statistics.

Table 2. Mean and Standard Deviation of the raw data of module outcomes, teaching and learning preference, and assessment methods.

Rank	Item	Mean	SD
1	To what extent do you feel that you have successfully achieved the module outcomes	3.82	1.045
2	What is your teaching and learning preference for a practical module	2.23	0.763
3	What is your assessment method preference for a practical module	1.87	0.520

Firstly, the overall mean score for the question on the extent to which the module outcomes were achieved was above the midpoint (3) of a 5-point Likert scale, which indicated that more than half of the students gave high scores for reaching the module learning outcomes, 37.1% of the respondents agree, and 20.7% strongly agree that the module learning outcomes were achieved.

The respondents reported academic performance, support and lecturers' presence in the online environment, timely feedback received from the lecturers, and overall performance in the module as some factors that contributed to the attainment of the module learning outcomes. Figure 1 illustrates the extent to which the module learning outcomes were achieved.

To what extent do you feel that you have successfully achieved the module outcomes

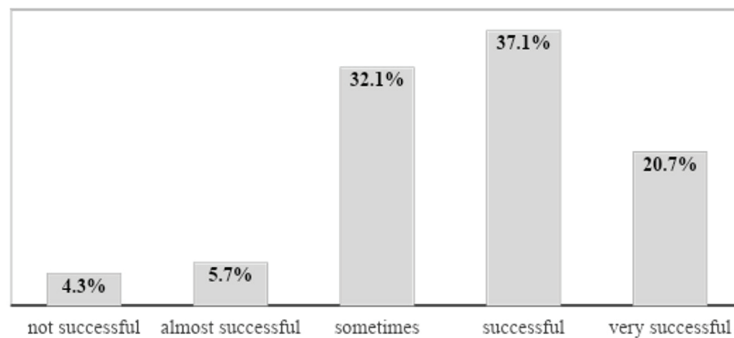


FIGURE 1. The extent to which the module learning outcomes were achieved

Secondly, in the case of teaching and learning preference, face-to-face teaching and learning were found to be the most preferred approach, with 41.7% of the respondents indicating that the face-to-face approach is the preferred mode of teaching and

learning and 36% opting for the blended approach of teaching and learning, while 22.3% indicated that ERL (online) is the preferred mode of teaching and learning.

Thirdly, 69.1 % of the respondents reported practical assess-

What is your teaching and learning preference for a practical module

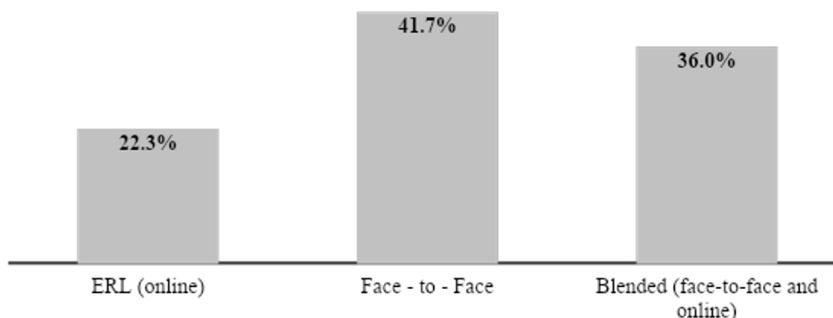


FIGURE 2. Teaching and learning preferences

ment as the preferred assessment method. The responses are linked to the practical nature of the PE practical modules; for example, one of the respondents stated that "... The content is understood better by applying the theory to real-life experiences"

therefore, the responses underline the fact that ERL cannot satisfy all educational needs and goals, more so when it comes to the PE practical modules, where students are required to demonstrate and apply their knowledge practically.

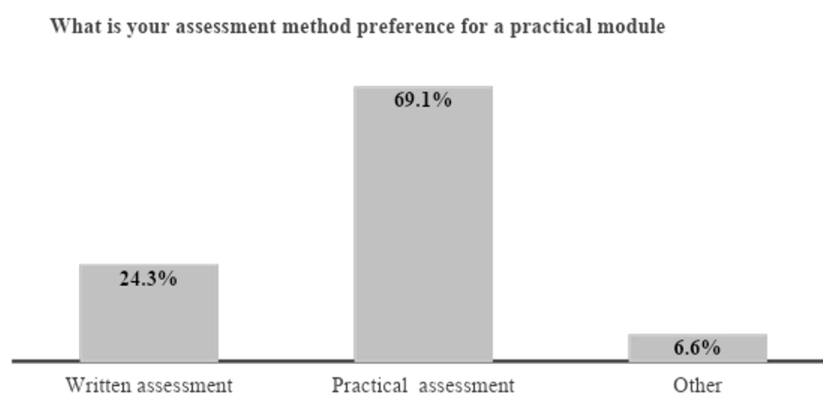


FIGURE 3. Assessment method preference

Lastly, the qualitative data based on the thematic analysis, the respondents identified some key factors that influenced their individual growth relating to the learning experiences in ERL. The respondents reported that these factors should be considered during the ERL. Some of these factors are related to technological challenges (network connection, data, infrastructure) and pedagogical challenges (for example, PE practical modules should address the issues of "knowing about something" (concepts and knowledge) and always how to do it (practical aspect). Regardless of the self-paced approach to learning, innovative approach to teaching and learning, and efforts by the lecturers to engage the students, the respondents believe that the practical aspect of the module should be done through a face-to-face teaching and learning mode.

Discussion

As lecturers and researchers, we strive for quality teaching in the PE programme. ERL influenced the programme and forced us to revise the PE practical modules. There is a general apprehension from most stakeholders concerned with PE about the online learning experience for students in PETE, most notably, the potential absence of 'physical' contact with academic staff (Varea & González-Calvo, 2020). Careful considerations need to be developed for PETE in HEIs in the ERL context that COVID-19 highlighted to ensure that, at the very least, the respective degree programmes can maintain their intended learning outcomes toward pre-service PETE.

The primary purpose of the PE practical modules was to introduce the students to the field of PE, sport, and the practical application and pedagogy thereof in a school context. These modules also equip the students to teach in the area of the subject of Life Orientation and Life Skills, precisely the outcomes dealing with physical development and movement, physical well-being, and recreation. A variation of teaching styles during each PE practical lesson was so that the students as a collective receive, process, and recall knowledge during collaborative learning. It was important for lecturers to explore how knowledge is constructed and how knowledge is acquired. Student learning through the process of adult education programmes, such as PETE, suggests that lecturers should consider and provide learning opportunities that are not isolated events in time. In 1966, Muska Mosston made a monumental contribution to the methodology of teaching PE with his description of teaching styles, also called teaching methods, which ranged from command to discovery styles. Academics

have recognised that a lecturer rarely teaches a whole lesson using one style, but rather the lecturer chooses different styles to meet different learning objectives. The spectrum of teaching styles has a prominent position in PE literature and is widely included in PETE programmes (Sanchez, Byra & Wallhead, 2012). Teaching styles are principles of instruction implemented by lecturers to achieve the desired learning by students. Using a variety of teaching styles throughout a PE programme was perceived as the most effective way to include all students and meet the diverse needs of all students.

The technological challenges, like lack of access to educational technologies, were a clear difference between the student's experiences of those living in rural areas and those students living in urban areas. Poor internet connections were a burden across the board. Over the years, those who have built online programmes will attest that effective online learning aims to be a learning community and supports learners, not just through instructional but with co-curricular engagement and other social support (Bouilheres, Le, McDonald, Nkhoma & Jundug-Montera, 2020). How much infrastructure exists around the educational ecosystem of face-to-face delivery that supports student success that facilitates socialisation with peers, library resources, housing, career services, and health services needs considerations. Lecturers are one instructional aspect of an educational ecosystem specifically designed to support learners with formal, informal, and social resources. Effective online education requires an investment in an educational ecosystem of learner support, which takes time to identify and build (Hodges, Moore, Lockee, Trust, & Bond, 2020).

The pedagogical approach, social constructivism, used by the lecturers during ERL, replicate what would have otherwise been face-to-face or hybrid teaching of the PE practical modules. The collaborative learning theory was used for student engagement and to promote effective teaching and learning. Opportunities were created for flexible learning, as lecture recordings were available throughout the modules for students to refer back to whenever needed. The module outcomes were achieved as the lecturers supported the students in promoting their learning experiences by scaffolding learning so that students could reach the required outcomes. This pedagogical approach was a way of clarifying learning objectives and content. Teaching and learning in the PE practical modules were effective as the students' overall perception was that they attained the module learning outcomes.

Including the technological challenges and the pedagogical aspect, the aim to explore the experiences of undergraduate stu-

dents in the ERL of PE practical modules was reached as the students experienced face-to-face teaching and learning as the most preferred approach and practical assessment was the preferred method of assessment.

In summary, the majority of the students feel they have successfully reached the outcome of the practical module they have enrolled for. The availability of online class recordings assisted students in their self-paced approach to learning. Collaborative learning was preferred only if the lecturer was involved, as it seemed a significant challenge when student-driven. A PE programme needs face-to-face contact with students and can sometimes benefit from a blended teaching approach. Exploring ERL's effectiveness through student experiences is relevant, as other PE lecturers and PETE programmes making a sudden transition to remote operation can consider adopting a similar pedagogical approach.

Conclusion

The success of ERL in enhancing the students' learning experiences is not only based on the effectiveness of students or module outcomes, collaborative learning, and innovative pedagogical approaches used by the lecturers. The online environment requires students to have access to the online learning environment and a well-established online educational ecosystem. Lack of technological access might exclude students from effective learning in the PE practical modules for economic or logistic reasons. Teaching and learning of PE in higher education are considered effective through a face-to-face delivery as education through movement is difficult to replicate digitally.

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Data availability: Raw data were generated at a university in Pretoria, South Africa. Derived data supporting the findings of this study are available from the corresponding author on request.

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References

Branch, R.M., & Dousay, T.A. (2015). Survey of instructional design models. Association for Educational Communications and Technology.

Braun, V., & Clarke, V. (2012). *Thematic Analysis*. APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative,

qualitative, neuropsychological, and biological, 57-71.

Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of organizational behavior*, 36(1), 3-15.

Bouilheres, F., Le, L. T. V. H., McDonald, S., Nkhoma, C., & Jandug-Montera, L. (2020). *Defining student learning experience through blended learning*. Education and Information Technologies, 25(4), 3049-3069.

Burgess, S., & Sievertsen, H. H. (2020). *Schools, Skills, and Learning: The Impact of COVID-19 on Education*.

Creswell, J. W. (2015). *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage

Dyment, J. E., & Jillian, J. D. (2020). Online initial teacher education: a systematic review of the literature. *Asia-Pacific Journal of Teacher Education*, 316-333.

Hodges, C., Moore, S., Lockee, B., Trust, T. & Bond, A. (2020). *The Difference Between Emergency Remote Teaching and Online Learning*.

Kumar, R. (2019). *Research methodology: A step-by-step guide for beginners*. (5th ed). Sage Publications: London.

Laal, M., & Laal, M. (2012). Collaborative learning: what is it? *Procedia-Social and Behavioral Sciences*, 31, 491-495.

Molleman, L., Van den Berg, P., & Weissing, F. J. (2014). Consistent individual differences in human social learning strategies. *Nature Communications*, 5(1), 1-9.

Mosston, M., & Ashworth, S. (1966). *Teaching physical education*. Columbus, OH, Merrill.

Mosston, M., & Ashworth, S. (1986) *Teaching Physical Education*. Edition 3. Columbus, OH, Merrill.

Quennerstedt, M. (2019). Physical education and the art of teaching: transformative learning and teaching in physical education and sports pedagogy. *Sport, Education, and Society*, 611-623.

Richards, S., Aziz, N., Bale, S., Bick, D., Das, S., Gastierford, J., & Rehm, H. L. (2015). Standards and guidelines for interpreting sequence variants: a joint consensus recommendation of the American College of Medical Genetics and Genomics and the Association for Molecular Pathology. *Genetics in Medicine*, 17, 405-423.

Sanchez, B., Byra, M., & Wallhead, T. L. (2012). Students' perceptions of the command, practice, and inclusion styles of teaching. *Physical Education & Sport Pedagogy*, 17(3), 317-330.

Singh, A. S. (2017). Common procedures for the development, validity, and reliability of a questionnaire. *International Journal of Economics, Commerce and Management*, 5(5), 790-801.

South African Government. (2020) Statement by President Cyril Ramaphosa on the escalation of measures to combat the Covid-19 epidemic. Union buildings, Tshwane, South Africa. <http://www.dirco.gov.za/docs/speeches/2020/cram0323.pdf>

South African Government. (2020). Minister Blade Nzimande: Measures to deal with the Coronavirus COVID-19 in the post-school education and training sector. <https://www.gov.za/speeches/minister-higher-education-science-and-innovation-statement-measures-deal-COVID-19-threat>.

Thomas, J. R., Nelson, J. K., & Silverman, S. (2011). *Research Methods in Physical Activity* (6th ed.). Human Kinetics.

Varea, V., & Gonzales-Calvo, G. (2021). *Touchless classes and absent bodies: teaching physical education in times of Covid-19*. Sport, Education and Society, 831-845. Harvard University Press.

Vygotsky, L. S., & Cole, M. (1978). *Mind in Society: Development of higher psychological process*.