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12 ORIGINAL RESEARCH

A Case Study: Teaching Materials Developments, Practices, and Applications of Using QR codes in Physical Education classes

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ABSTRACT

Introduction: QR codes can contain information such as lecture contents, URL links, assignments, or just about any Physical Education teaching method class information that can be embedded in a two-dimensional barcode. This encoded data can be decoded by scanning the barcode with a mobile device that is equipped with a camera and QR reader software.

Purpose: The purpose of this study was to investigate the developments, practices, and applications of pre-service physical education teachers about the use of QR codes in the teaching materials that they prepared in the teaching method course.

Methods: A total of 73 (22 female, 51 male) pre-service physical education teachers participated in this study in the Fall semester of the 2020-2021 academic year. For this case study, the qualitative data were collected through class observations, peer reviews, and formal-informal interviews. The data were analyzed by open-ended items (e.g., class observations and informal interviews), and formal interview data were analyzed using the constant comparative method.

Results: The study found the perspectives of prospective physical education teachers on the use of QR codes in the teaching materials they developed, in the learning process, its motivation, engagement, and effects of QR codes on the materials developments, practices, and applications. Specifically, first, it could improve all students' learning interests, motivation, and involvement. Second, technology can allow students to save class management and learning time for the activity class. The last, the knowledge of physical education technology applications can be expanded during the lecture.

Conclusion/Discussion: The future suggestions of the technology in PE class are as follows. First, support for more technical systems for functional problems should be provided. Second, it is necessary to develop technologies associated with the PE curriculum. Third, educational content should be developed to cultivate cooperation and cohesion through technology. Fourth, the perception of PE class and technology will have to change. Finally, all pre-service PE teachers stated that QR codes could be used in game-based learning, gym instructions, class assessment, assignments, classroom boards, and school corridor at the end of the semester. The pre-service PE teachers listed the advantages of QR codes as short preparation time, easy preparation, portability, updateable, time saving, preventing paper wastage, and providing direct access to targeted information. The prospective PE teachers pointed out the disadvantages of QR codes as Internet connection problems, requiring tablets, smartphones, or smart devices and QR code preparation in paid applications.

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