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Editorial: Digital technology in physical education — Pedagogical approaches

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Editorial on the Research Topic
Digital technology in physical education — Pedagogical approaches

This Research Topic sought to consolidate studies that explored the role of digital technology in physical education. Empirical works that investigated how different pedagogical approaches can be enriched, empowered, and improved using digital technology were of particular interest. We were also interested in highlighting any gaps or areas that could be addressed to improve different practices with digital technology.

Our rationale behind this Research Topic is that the widespread use of digital technology in society creates an opportunity to gain knowledge on how young people are affected in relation to areas such as motivation, learning and performance in school and educational contexts. In this emergent field of research, there is a growing amount of empirical evidence demonstrating the benefits of using digital technology to improve the impact of different pedagogical approaches in physical education. Flipped learning, gamification, and exergames have shown to positively influence both student motivation, learning and performance. Nevertheless, there is a major need for research to better understand how digital technology is implemented by teachers using different pedagogical approaches and identify where digital technology can be beneficial across all educational levels. As digital technology use continues to grow, and youths' lives are more and more infiltrated by those technologies, it is of crucial importance that in physical education we seek to critically analyse and identify affordances from those technologies.

As a result of this call, we worked with a variety of different authors. Five contributions were suitable for publication. This also reminds us that research on digital technology is a rapidly evolving field. It is also a relatively young and still emerging field of research. In addition, some of the areas of research covered in this topic may be generally unknown or previously not studied. Nevertheless, the works included are of high quality and each of them contributes to answering the aims of the topic in a variety of different ways.

TABLE 1 Contributions to the Research Topic.

References	Research focus	Educational technology	Educational context	Analytic approach
Ferriz-Valero et al.	Flipped learning, motivation, and volleyball	Edpuzzle	Grade 3 and 4	Univariate statistical analysis
McNamara et al.	Adapted PE and professional learning	Social media	APE teachers	Multiple linear regression
San et al.	Peer Evaluation and Feedback	Video/iPads	Grade 4, 5, and 6	GEE analysis
Greve et al.	Soccer and TGfU	Videocatch app	Grade 4	Grounded theory
Roche et al.	Aquaphobia	360 video	Grade 6	Course of action research approach

Table 1 demonstrates the different works published under this topic.

Ferriz-Valero et al. used a quantitative methodology to evaluate the effects of flipped learning in the acquisition of conceptual contents in volleyball. The Edpuzzle platform was used to deliver the flipped learning content. They found through their study that the students benefited from flipped learning in developing their cognitive and motivational learning about volleyball in physical education. Furthermore, there seemed to be differences between girls and boys in respect to boys seemingly developing autonomous motivation more than girls.

McNamara et al. focused their study on adapted physical education (APE) teachers' use of social media (e.g., Twitter and Facebook) for their professional learning. Using a survey and multiple analyses they concluded that APE teachers use a variety of social media platforms to learn about topics such as activities and equipment. They further noted how teachers found conferences more useful in gaining information about APE topics compared to social media. Subsequently, social media was assistive to professional learning but collaboration at conferences were more valuable for learning about APE content.

San et al. sought to examine the nature of quality of interactions between students using video-modeling and three different peer-to-peer (P2P) evaluation methods. The context of this study was in basketball and involved students being divided into groups for the different evaluation methods. Video recorded interactions between students and the evaluation method of structured paper evaluation had significantly more depth of feedback. Structured video using a prototype app on an iPad demonstrated more on-task time along with positive comments from evaluators. This study prompts us to consider which types of digital technology are most appropriate to improve the nature of feedback during peer evaluations in physical education.

Greve et al. focused on how elementary school students experience and interpret the use of digital media (app video recordings) when teaching soccer using the TGfU (Teaching Games for Understanding) approach. Using interviews, the students were very reflective about the use of the app in physical education. The app was mainly used as a learning aid in terms of implementing tactical ideas discussed together in the reflection phases of the game development. The authors also discuss the pragmatic use of the app by students and perhaps unanticipated uses such as using the videoing as a video assistance referee.

Roche et al. looked at the potential for 360-degree video use for reducing fear and apprehension that underpin aquaphobia. Three main results of the study could be underlined. First, the use of 360° video viewed in an HMD led students to live an original corporeal immersive experience; a kind of immersion in the pool but experienced outside the pool. Second, students felt a strong emotional engagement between anxiety and curiosity from exploring the aquatic environment. Third, during the viewing situation, students developed and acquired accurate perceptive cues and knowledge related to the aquatic environment.

Taking all the studies into account, the Research Topic has covered how a variety of digital technologies have been used in different physical education contexts. Approaches such as flipped learning have been investigated as well as the affordances of different technologies such as video, apps, and social media. The papers in this issue challenge us to consider how the use of digital technologies can benefit our students and in what ways they could offer affordances. McNamara et al. also point toward how teachers and educators can develop their own professional learning. Future research will indeed be important to explore whether the benefits of digital technology for students in physical education is equitable and sustainable.

Author contributions

OØ, JS, and CK: writing, review, and editing. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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