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Active video gaming in PE – a critical exploration

Mikael Quennerstedt, Örebro university, Sweden
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mikael.quennerstedt@oru.se

Objectives and purposes
Physical Education (PE) is often described as an answer to the increasing public health problem among young people, for example, concerning counteracting sedentary lifestyles. At the same time, studies show that the young in most need of getting more physical activity are often the same as those that do not take part in PE successfully. Sedentary activities such as watching TV and video games are often highlighted as activities promoting an unhealthy lifestyle. However, video- and computer games are also an important part of youth culture and further held forth as an important resource for the future in terms of developing IT-competence.

A certain type of videogames that require body movement during game-play, so called exergames (for example Wii Fit, Wii Sport or Just Dance), are in several countries put forward as interesting tools in schools since they combine IT-technology and physical activity. Furthermore, researchers are not the only ones making this connection, also developers of video games have thought of the idea of making inactive young people more active by offering them something they might enjoy and at the same time make them more physically active.

In recent years there has been a growing scholarly interest in relation to exergames. Researchers have begun to explore the effects of exergames and how young people experience exergames in comparison to other activities offered by the curriculum in PE. The body of research indicates that exergaming has potential to contribute to PE programs by supplementing the current activities and increasing student enjoyment for PE and physical activity (cf. Hawkins, 2009; Epstein, et al., 2007; Gao, 2012; Maddison et al., 2009; Mhurchu, et al., 2008; Sell, Lillie, & Taylor, 2008; Sheehan, & Katz, 2013; Sun, H., 2012). In an overview, however, Ennis (2013) points out several limitations in existing research. According to this critique, the researchers have limited their studies to physiological, psychomotor, and cognitive variables, neglecting educational goals and values in PE. However, Ennis argues that exergaming activities can have potential to reach these goals, but at the same time she points out a gap in research where the educational aspects of using exergames in school needs to be more thoroughly explored.

In this presentation the call from Ennis is considered and results from a four-year study in Sweden funded by the Swedish Research Council with the aim to investigate the educational values of exergames and the learning regarding the body, physical activity and health that take place in young peoples playing of exergames is presented. In the project we have first investigated if teachers use videogames in PE as well as explored the arguments for doing that (Quennerstedt et al., 2013; Meckbach et al., 2013). Secondly, the content offered in the games regarding the body, physical activity and health has been investigated in game manuals and in the game content (Öhman et al., 2014). Thirdly, the project has explored what young people learn when playing video games and how this learning occurs. The focus of this presentation is thus on the
The educational aspect of exergames in terms of the teaching and learning occurring when introducing an artifact like video games in school PE.

**Theoretical framework**

Wertsch (1998) argues that the use of artifacts in education creates specific conditions for learning and that the relationship between action and socio-culturally constituted artifacts are central for research within sociocultural perspectives. With a sociocultural perspective on teaching and learning, focus is on how linguistic and material artifacts shape and are shaped by human action in the social processes in which they are used. In the project we are accordingly interested in how the body, physical activity and health is constituted in young people actual use of active video games or exergames in school.

The framework used for analysis of the visual data is based on a socio-cultural approach in which different aspects of the learning process is studied and described in terms of action and the functions of the actions in the explored situations. The approach draws on socio-cultural learning theory (Rogoff, 1995; Wertsch, 1998) and pragmatic philosophy (Dewey & Bentley, 1949; Biesta & Burbules, 2003). With this follows that learning is explored in specific practices and cannot be separated from the context in which learning takes place (Dewey & Bentley, 1949; Biesta & Burbules, 2003).

Dewey (and Bentley 1949) argues that meaning, and by extension learning, should not be treated as something that only occurs in people's consciousness (the mind). Instead, the creation of meaning is inextricably intertwined with the relationships that are created in and through actions taking both verbal and embodied actions into account. As Wickman and Östman (2002) puts it: "We use a pragmatic view that combines a view of learning as a social construction with a view that acknowledges the physical world together with cognitively and emotionally active individuals. They all meet in the learning process "(p. 602). With this approach the influence of artifacts on young people’s actions and the influence of actions regarding the meaning of the artifact is explored in the data as different aspects of the same practice. We consequently focus on the processes in which the artifact is used. This means that the relationship between young people's actions and the video game is not treated as a relation between separate units that can be described and defined before the meeting takes place and affecting each other. Instead they are treated as a whole that is constituted in the situation in terms of 'individuals-acting-with-artifacts-in-educational-settings' (Quennerstedt et al., 2012). Hence, we can investigate both different notions of physical activity, health and embodiment that is manifested in the video games and different notions of physical activity, health and embodiment that is constituted in young people’s use of the games.

**Methods and data sources**

The study is carried out through analysis of the content offered in the games, and video- and audio recordings of on-going video gaming in school. The analysis of the video data focuses on spoken as well as embodied actions appearing in young peoples playing of different exergames. Data has been gathered during three PE lessons with 25 students and in two groups of three students playing once a week for 90 minutes during ten weeks.

In the analysis of the (teaching) content offered in the games, the exergames Wii fit and Wii sports were explored in terms of the knowledge, values and norms of body, physical activity and health. The study was conducted with text analytic methods to examine what content regarding body, physical activity and health offered in the game itself in terms of
what students are expected to do when playing (Öhman et al., 2014). In the study of visual data focus was directed towards what students learn when they play video games, and how this learning occurs. A special focus was directed towards what view of the body that was constituted in young peoples use of the game, and if, and in what way, notions of health could be identified in their meaning making while playing.

**Results and conclusions**

The results of the content offered by the games show that the fitness games explored offered students physical activity in various ways, but at the same time a notion of an ideal body as active, well-balanced, thin, fit and strong. This type of body was something everybody should strive for. The games also offered a notion of good health that was measured in terms of age (preferably young), constant calorie consumption and an ideal measurement of health as a BMI of 22. In the beginning the game asks: "How would you like to work towards a BMI of 22?". It is consequently a calculable body that becomes part of the teaching content. The sport games however offered activity together with clear rewards related to ranking and competition.

At the same time both types of games offered a type of ‘teaching’ characterized by instruction, rewards and also negative comments like “You are a couch potato” or "You are unbalanced. Do you trip over yourself a lot when you walk”. It is a quite behavioristic teaching going on in the games. At the same time the players are supposed to surveill both their own bodies and progress as well as the activities of their peers. The game for example comments: "I haven’t seen Emma for a while. Has she stopped exercising?". The teaching in the games is consequently mainly instructive, confirming and supportive. Nowhere in the games an educational content or teaching is visible that supports or explores issues related to educational issues or values in PE.

The analysis of the video data is ongoing, but preliminary results show that students relate to the games more as social activities than physical activities. Also becoming better in the game itself and thus developing a certain movement competence in relation to the game is important. The constant comparisons and competitive aspects of the games becomes a way to socialize and create excitement rather than a matter of winning or loosing. The study also shows that students use different movement qualities when playing the games. However indications are that the longer they play, the less activity and movement are needed for the students to fulfill the purposes within the games. However, ‘offensive’ comments from the game, the constant reminder of calorie consumption in the fitness games and the strong focus of loosing weight and measure BMI in the games are clearly part of the learning going on, and not always in a positive way.

In conclusion: as with the introduction of any artifact in educational settings it is important to ask questions about the educational values of this teaching resource. In relation to video games in PE it is important to ask what students are supposed to learn in PE with the aid of these games. As we see it is not enough to justify exergames in schools in terms of increased physical activity in order to ‘save’ overweight children from themselves by introducing activities they supposedly are prone to do, when at the same time the games promote a learning about health and embodiment that in many senses can be bad for their health. At the same time it is (as with any artifact) about how teachers use teaching resources in their practice.
Significance of the study

The significance of this study lies in the focus on the educational values of the introduction of video games in school PE, and not only the physiological or psychological values. Further the study explores both the content of the games and the learning going on when students both in PE-lessons and in small groups over 10 weeks have played the games. In this way a critical exploration and discussion around the educational values of exergames is possible, because if video-games are to be introduced in PE in a large scale, the educational values are essential, not the least in terms of critically exploring and highlighting the potential educational risks of the games.

References


