Learning during Intervention with Digital Tools in Physical Education Teachers Education

PhD thesis by Lars Elbæk, lelbaek@health.sdu.dk

Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark

Learning of learning is studied by intervention with digital mediation of movements and student-centred teaching forms in the training of pre-service teachers in an action research project.

Summary

Learning during Intervention with Digital Tools in Physical Education Teachers Education (LIDTPETE) is the cornerstone of my PhD project. My aim was to investigate learning taking place during development and change processes when digital tools and student centred teaching forms were used as intervention artefacts in pre-service PETE for primary school teachers.

Practices in sport and physical education are challenged by new media-based sources of inspiration and tools that involve a more autonomous learning practice. These opportunities of more autonomous forms that, as I see it, are only to a very limited extent exploited in general physical education. Against such considerations I attempt to answer the following research question: How can the use of digital resources be qualified and increased in the education of PE teachers?

This research question was among other things addressed by considering: a) what are digital tools and their function concerning physical movements b) learning during change of teaching and learning practice and c) methods that support and investigate change of PE teachers education.

The project forms part of the qualitative action research branch of practice research. This provides the opportunity to work with a range of theoretical approaches simultaneously such as cultural psychology, systems theory and phenomenology while at the same time working to develop practice theory relating to existing innovative practice and theory.

Interventions were carried out with digital tools specifically for use with PE in the form of video delay, editing video and video taped feedback. Digitalised music videos were used as a basis for imitation in learning dance sequences. Heart Rate monitors were used to register and provide feedback on the training workload. The internet was used to search for information on subjects specifically related to PE, health and training as well as common office applications were used.

It emerged during the project that there is no single model or method capable of explaining how and why various digital tools should be used pedagogically in PE. These considerations have led to the development of a pedagogical model for the digital mediation of movement.

Results are based on four articles. The first addresses the development of potential use of a video and of its justification. The second is about change and learning through the use of digital artefacts and other teaching and learning methods in the teaching situation. The two subsequent articles deal with method. The first describes the potential basis for intervener reflection during interventions. The last describes how data from change and development processes of digitally mediated physical education can be obtained and analysed. Overall it gives the following results:

- Learning to use new digital artefacts in the gym and classroom is fraught with challenges, and the process is often associated with resistance and a potential of personal boundary-crossing learning. This resulted in a change of practice in the form of a more pronounced use of a problem-solving approach, use of student-centred teaching and of digital mediation.

- The results also show that, when past experiences and teaching skills of the participants were felt to be not sufficient, it is possible for positive experiences in the relearning of practice to help transform attitudes in favour of in the future to change teaching and learning practices.

- Using action research it was possible to develop a digitised supported physical education teacher education. The researcher participating as an Appreciative Inquiring Systemic Intervener (AISI) supported developing the educational practice. Using footage as data medium, it was possible to investigate processes of learning and thereby exemplify signs regarding expansive learning and change learning in the LIDVI project.