



Teachers' engagement and students' satisfaction with a playful learning environment



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HIGHLIGHTS

- The study gave evidence of links between teacher engagement and student satisfaction with a playful learning environment (PLE).
- The differences in teacher engagement related predominantly to pedagogical and emotional factors.
- The study also indicated that teacher engagement developed gradually in the context of the PLE.
- In order to ensure student satisfaction with the PLE, it is critical that the teacher is inspired and engaged in related pedagogical approaches.
- The results are useful for teachers in their daily practices and in teacher education programs.

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ABSTRACT

The aim of this mixed-method study was to explore connections between student satisfaction and teacher engagement in a playful learning environment (PLE). Altogether, 331 students and 15 teachers were involved in a playful learning designed to establish a novel learning environment enhanced with the use of digital technologies. The data consisted of a student satisfaction survey, teacher interviews and the teachers' blog diaries. The findings indicate that differences in teachers' pedagogical and emotional engagement in playful learning can partially explain differences in student's satisfaction with the PLE.

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1. Introduction

Teachers are expected to adopt new teaching methods as well as use novel learning environments with technologies. Adopting new approaches requires transformed pedagogical thinking and teacher engagement (Ludvigsen, Lund, Rasmussen, & Säljö, 2010). Further, teachers' expertise (Mieg, 2009; Smith & Strahan, 2004) explains how flexible the teachers are in using novel learning environments and adopting new pedagogical approaches. Critical factors in teachers' use of novel learning environments are student-centered pedagogical approaches, positive attitudes towards technology, and the teachers' personal entrepreneurship (Drent & Meelissen, 2008).

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The playful learning environment (PLE) is a novel learning environment and the context of this study. In this study, the term *PLE* refers broadly to the implementation of a playful learning approach in a playful environment. Specifically we define it as a physical, pedagogical, intellectual, socio-emotional, cultural, and media-rich learning environment where learning happens by creating, playing, and doing (Kangas & Ruokamo, 2012). The PLE has recently been linked to technologically enhanced and play-based learning settings in pre- and primary-school education (Hyvönen, 2008a, b; Kangas 2010a, b; Kangas & Ruokamo, 2012; de Koning-Veenstra, Steenbeek, van Dijk, & van Geert, 2014; Randolph, Kangas, Ruokamo, & Hyvönen, 2016). The PLE connects curriculum-based education with digital technology, creativity, collaboration, and physical activities, and provides new locations for learning beyond the classroom and other indoor spaces. In the PLE, students are active participants, players, and game content creators and are involved in playful learning in outdoors and

indoors. Presumably, the PLE challenges teachers' expertise, but can also provide novel avenues for teachers to develop and to perform their professional duties (cf., Mieg, 2009).

So far, there is little empirical evidence on how the PLE is used in education and what effects it has on teaching and learning. Randolph and his colleagues (2016) and Koning-Veenstra with her colleagues (2014) have studied the PLE in primary school settings. Randolph et al. (2016) found out that the PLE can help students improve their academic achievements across a variety of academic subjects. In addition the PLE has been shown to enhance student motivation (de Koning-Veenstra et al., 2014). Hyvönen (2008a) and Kangas (2010b) argue that the PLE can provide a learning environment where teachers can easily design play-based teaching and learning processes to awaken students' interest, and to increase their engagement in and satisfaction with learning.

While a great amount of research has been done on how learning environments have been harnessed for learning, relatively few investigations have been mixed-method studies that focus on students' satisfaction and teachers' engagement simultaneously. Consequently, there is no coherent, research-based understanding about how teachers' engagement is related to student-related factors in the context of novel learning environments. Instead, researchers have explored the relationship between teacher and student enjoyment (e.g., Frenzel, Goetz, Lüdtke, Pekrun, & Sutton, 2009).

In this mixed-method study, we explore the connection between students' satisfaction and teachers' engagement in the context of an innovative playful learning environment (PLE). We contribute to the discussion of novel learning environments and describe a study in which elementary school teachers applied playful learning approach in their classrooms. We take into account students' and teachers' perspectives and believe that exploring both perspectives can explain why a certain innovation succeeds or not in the classroom. Thus, relevant questions include the degree to which students are satisfied with the PLE, what factors influence student satisfaction with the PLE—especially in terms of variations in teachers' pedagogical engagement when implementing the PLE.

In our two-step investigation, we first focused on the quantitative aspect of student satisfaction with the PLE by carrying out a student satisfaction survey. In the second step, we explored the qualitative differences in teacher engagement in classrooms with the lowest and highest levels of student satisfaction. In this qualitative part of the study, the data consisted of teacher interviews and the teachers' blog diaries. The five-week period of the playful learning intervention was conducted in three elementary schools in Finland and the Netherlands.

2. Theoretical framework

The theoretical framework consists of three conceptual approaches: *playful learning*, *student satisfaction*, and *teacher engagement*. Student satisfaction and teacher engagement are the central phenomena of our investigation. Playful learning involves a pedagogical approach applied in the research context of the PLE.

2.1. Playful learning

In this study, the term *playful learning* refers to learning activities embedded with playful engagement and exploration when using novel tools and technologies in learning. The concept of playful learning is based on the current view of the meaning of play and playfulness in learning and on earlier studies on playful learning environments, wherein curriculum-based learning is enriched with play, games and technological affordances (Hyvönen, 2008a, b; Kangas, 2010a, b; Resnick, 2006).

We posit that playful learning is a useful approach for using novel tools and learning environments because it allows the use of imagination and a playful attitude toward learning and experimenting. In addition, earlier studies have connected playful learning to features such as playfulness, creativity, collaboration, embodiment, narration, emotion, and media richness (Hyvönen, 2008a; Kangas, 2010a, b). It also has been shown to support engaging, insightful, and hands-on learning that usually produces a joy of learning (Csikszentmihalyi, 1990; Kangas, 2010b; Resnick, 2006). Thus, in this study we hypothesize that a playful learning approach can have positive influences on students' learning as well as on their satisfaction with the learning environment.

In the PLE, technology associated with various media tools makes it possible for students to create their own game content and play those games on the playground. Kangas (2010a) has studied playful learning enriched by technological tools and proposes that integrating play and game co-creation in teaching and learning can be an effective way to foster students' learning, creativity, and imagination. By designing artifacts such as curriculum-based play and game content, students can create and recreate their understanding and find a meaningful way to take part in their learning activities (Kangas & Ruokamo, 2012).

The teacher's role in the playful learning process, according to Hyvönen (2011), can vary between a leader, an allowee, and an afforder. This means that the roles adopted by teachers and students are complementary and interdependent—the more the teacher leads the playful learning process, the less possibilities the students have to be actively engaged. The three roles of the teacher highlight a rich and comprehensive developmental view of learning. The teacher designs playful learning processes based on integration of play and curriculum, as well as school subjects, such as mathematics, art, and physical education. One aim in playful learning is for students to participate in designing playful learning processes *together with* the teacher. This curricular design gives students more agency and ownership of learning (Kangas, 2010b).

In this study, before applying playful learning in the classrooms, teachers were introduced to these features as starting points. The phases of playful learning approach are closely presented in the Methods section of this study. In the quantitative part of the study we focus on students' satisfaction with the PLE and in the qualitative part of the study we focus on two teachers' engagement in playful learning.

2.2. Student satisfaction

Essentially, we were interested in students' levels of satisfaction with the PLE and define *satisfaction* as the joy of fulfillment that learning activities and the experiential outcomes that those activities can produce. In this definition positive attitudes and feelings towards the learning process, which are usually triggered by learning motivation, are of primary importance (Chang & Chang, 2012; Topala & Tomozii, 2014). Chang and Chang (2012), for example, observed a strong association between students' motivation and satisfaction. Thus, we can assume that the more students are motivated with playful learning the more they are satisfied with the PLE. Deci, Ryan, and Williams (1996) have conceptualized satisfaction as a spontaneous experience that typically relates to an intrinsically motivated behavior.

Previous studies have indicated that learning satisfaction is influenced by factors such as the content, location and facilities, the teacher's teaching skills and individual characteristics, and students' participation (see Davis & Davis, 1990; Kerwin, 1981; Lam & Wong, 1974). Further, according to Verkuyten and Thijs (2002), the academic and social climates in the class have positive effects on students' level of satisfaction with learning. Thus, we can expect,

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