ABSTRACT

The nature of vocational education needs has changed. In authentic vocational classroom contexts, there is a rising need to develop new ways to integrate ongoing and overlapping processes of students' personal learning environments and collaborative knowledge construction. However, there is currently very little knowledge about how teachers integrate these two approaches in arranging learning. This creates new challenges for teachers when creating instructional activities, especially regarding teacher-student interactions. This case study illuminates teachers' instructional activities in empowering the students' knowledge construction in a technology-enhanced learning setting. The results showed six main teacher-student interactions related to orchestrating learning. In addition, this study illustrates how vocational education teachers enhance students' learning in ways that meet working life needs (e.g., by selectively restructuring knowledge from the viewpoint of work settings).

Keywords: Computer-Supported Collaborative Learning (CSCL), Orchestrating Learning, Personal Learning Environments (PLE), Qualitative Research, Teachers' Instructional Activities, Vocational Learning

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1. INTRODUCTION

Teachers are increasingly implementing new technologies in their classrooms. However, in reality, effective and sustainable use of technology-enhanced learning (TEL) is rare. In addition, the degree to which technologies are currently embedded in schools includes great variation depending on teachers’ personal interests (Underwood & Dillon, 2011). At the same time, current educational research offers knowledge on learning processes. For example, research in TEL has focused on topics such as collaborative learning (Stahl, Koschmann, & Suthers, 2006) and supporting students’ unique styles of learning (e.g., with the aid of personal learning environments (PLE); Attwell, 2007). According to recent research findings, the influence of these two approaches to learning is positive compared with traditional teacher-led, lecture-based learning or traditional classroom practices. The current challenge is to further apply these research findings to empower the integration of teacher’s instructional activities in TEL settings. In the following sections, we describe the two research-based pedagogical approaches (based on studies in personal and collaborative learning). Thus, our aim is to understand the possibilities that teachers in the vocational classroom context have for arranging learning situations to enhance both students’ unique styles of learning and collaborative knowledge construction. Related to that, we will discuss teachers’ role in orchestrating learning.

Currently, interest in the study of the technological possibilities of supporting learners’ personal development in the perspective of lifelong learning is growing. Recent studies have discussed, for instance, the design of personal learning spaces and how traditional technological environments could be used to support personal learning goals (Fiedler & Väljataga, 2011). In practice, the aim is to increase each learner’s own control over her/his development and learning (Liber & Johnson, 2008). PLE refers to a technological and pedagogical approach that is designed around each student’s personal goals and needs. In addition, the goal is for each student to be able to recognize and apply his/her learning styles (see Dabbagh & Kitsantas, 2012). The advantage of personal learning scenarios is that students will learn to recognize their own ways of learning, and the material they produce in a school context will be available for them to use in the future. Moreover, constructing a PLE can be seen as an essential part of building vocational skills and knowledge, since the primary task in different fields of vocational education is typically to offer special expertise to solve problems in work life (e.g., how to install an HVAC). Thus, teachers need to handle personalized learning in technologically-enhanced classroom settings.

On the other hand, collaborative learning is an effective way to arrange learning situations so that the participants themselves can solve problems through a shared group effort (Hämäläinen & Vähäsantanen, 2011). In general, the main idea of collaboration is that learners construct the work together in a process of shared knowledge construction (Sawyer, 2007). Thus, collaborative problem solving has been evidenced to help group members commit to working and achieving something beyond the reach of a single group. Recent research findings have indicated that computer-supported collaborative learning (CSCL, for further description, see Koschmann, 1996) can be used to improve educational practices. For example, studies have shown positive effects on problem-solving abilities and domain-specific knowledge. Despite the encouraging results on CSCL, it is critical from the perspective of vocational skills development that these studies have centered on the other education contexts (e.g., higher education). So far, only a handful of researchers have produced empirical studies in this specific area of CSCL and vocational learning.

For the future, the need for (individual) problem solving is suggested to be increasingly essential because working life is apparently becoming more and more complicated. At the same time, in their current working life, professionals often need to solve problems in multidisciplinary teams. The main advantage of such teams is that their members benefit from one another’s
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