

# Self-directed learning in pre-vocational secondary education: An analysis of difficulties and success factors in workplace simulations

Helen Jossberger, Saskia Brand-Gruwel, Henny Boshuizen; Open University of the Netherlands  
Helen.Jossberger@ou.nl, Saskia.Brand-Gruwel@ou.nl, Els.Boshuizen@ou.nl  
& Margje van de Wiel; Maastricht University  
M.vandeWiel@psychology.unimaas.nl

**Abstract:** This study investigates success and failure factors related to workplace simulation learning in Dutch pre-vocational secondary education. Research in other practical settings indicates that self-directed learning, self-regulated learning and deliberate practice are key competencies that positively affect learning outcomes. A focus group study with 20 teachers and 35 students was conducted. Similarities and discrepancies between theory and practice are put forward. For instance, not offering choices interferes with a self-directed learning approach.

Workplace simulations in pre-vocational secondary education are authentic practice-oriented learning environments, in which traditional vocational skills, generic skills, and domain knowledge are integrated. These learning environments are supposed to meet the characteristics of the learners, who are described as 'do-learners'. This description suggests that learning of theories alone is insufficient for these students to connect and apply the theory to the context (Ogg & Kollaard, 2001). The pedagogical approach in workplace simulation learning, however, is hardly studied and not much is known about the way students learn, the lessons and instructions the teacher provides, and if the learning environment fits the need to achieve optimal learning progress.

Experience shows that students are mostly highly motivated in these learning environments. However, at the same time inherent difficulties arise. For instance, students do not know what to do or they have preferences for specific activities at the cost of key activities (Beckers, Jacobs, & Kerkhoffs, 2005). The problems students have with learning in workplace simulations have not yet been systematically investigated and analyzed so that detailed insights into the processes underlying these problems is missing. Moreover, little is known about students' success and failure factors in workplace simulation learning. We believe that the effectiveness of workplace simulation learning depends upon a number of factors. Factors of influence can be rooted in learning related student characteristics, in the learning environment, or in the social environment like peers and parents. The interaction between the different factors makes the difference between successful and unsuccessful workplace simulation learning. The aim of the present study is to determine which difficulties arise in workplace simulations in pre-vocational secondary education and which success and failure factors related to learning can be identified from theory and practice.

The fact that we are dealing with practical settings implies that learning from experience plays a very important role. What and how students learn seems to depend on their ability to create learning opportunities independently and actively. Moreover, insight into their own learning process is essential to choose an appropriate learning path and to focus on performance aspects that need improvement. Important competencies that are suggested to influence successful learning in workplace simulations are self-directed learning (Knowles, 1975), self-regulated learning (Zimmerman, 2000), and deliberate practice (Ericsson, Krampe, & Tesch-Römer, 1993).

Self-directed learning, self-regulated learning and deliberate practice are closely related concepts that describe how high-level performance can be achieved by high-quality involvement in learning (Van de Wiel, Szegedi, & Weggeman, 2004). We use the term learner self-direction and define it as the ability to direct learning towards a desirable learning outcome, and the skill to manage and organise one's own learning needs, strategy use, and learning opportunities. In order to be able to do so, the learner makes use of learning strategies. Self-regulated learning is the foundation for a learner seeking to become a self-directed learner. Self-regulated learning refers to a cyclic process of planning, monitoring, and evaluating actions to bring about successful learning. The implementation of appropriate regulatory strategies is an essential ability of successful learners who are clearly goal oriented (Zimmerman, 2000). A final approach in research on self-direction is deliberate practice, which refers to a focused effort on the development of performance aspects that need improvement. Improvement of performance is affected by both how much and how learners practice. The teacher plays a crucial role in helping students to develop learner self-direction by focusing on their learning methods and techniques, and providing informative feedback (Ericsson et al. 1993; Zimmerman, 2000). Deliberate practice, self-regulated and self-directed learning can be practiced and learned but demand a lot of effort, time, and an

appropriate learning environment. For students who are poor self-regulated learners, workplace simulations are likely to pose difficulties. These learning environments require initiative of the learner and responsibility for learning. Those who are able to direct and regulate their learning and practice vocational skills deliberately are expected to reach higher levels of performance than individuals who are less skilled in directed and regulated learning.

On the basis of a literature review in combination with a focus group study, success and failure factors in workplace simulations in pre-vocational secondary education are identified and a model of actions, interactions, and factors that influence learning was developed.

The participants are 20 teachers and 35 students of different schools for pre-vocational secondary education specialized in the sectors agriculture, engineering & technology, and care & welfare. Both groups are divided into several separate focus groups with a maximum of four teachers per group and between three and five students per group. Students are in the final year, aged between fifteen and seventeen, and have worked and learned in workplace simulations for at least one year. They follow an advanced vocational learning pathway.

The focus group interviews for students and teacher focused on four broad topics. Open questions were formulated concerning the learning environment (workplace simulations), the role of the teacher, the role of the student, and the role of significant others including parents and peers. Participants were asked to illustrate their answers with examples. The interviews were recorded and transcribed.

A grounded theory method (Strauss & Corbin, 1998) is used to analyze the data of the focus groups. Preliminary results indicate that workplace simulations (in the participating schools) are highly structured learning environments, in which tasks provide clear instructions of what to do and how to do it. Collaborative learning is mostly used as method of working and planning- and reflection moments are partly integrated. Making choices, however, seems limited to a predefined set of possibilities. These environmental conditions seem to interfere with the idea of self-directed learning and students seem to be very dependent on the guidance, direction, and presence of the teacher. Success factors that are mentioned in the interview include discipline, effort, goal setting, will to learn, and ability to work independently. Results and conclusions of the focus group study will be presented at the conference.

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