

Chapter 47

Motivational Active Learning in Blended and Virtual Learning Scenarios: Engaging Students in Digital Learning

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ABSTRACT

The way people learn has changed over the last years. New pedagogical theories show that engaging and active learning approaches are particularly successful in improving conceptual understanding and enhancing the students' learning success and motivation. The Motivational Active Learning approach combines engagement strategies based on active and collaborative learning models with gamification. While many active learning models rely on in-class setups and active and personal interactions between students and between instructors, MAL was designed to integrate active learning in different settings. Our research project focuses on enhanced learning strategies with MAL in different computer-supported scenarios. This chapter outlines the potential of the pedagogical model MAL (Motivational Active Learning) in the context of blended and virtual learning scenarios; it also summarizes relevant literature and discusses implications and future work.

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INTRODUCTION

I'm always glad to work in pairs (groups) in the class as well as discuss the study material in the lecture. I like integrated exercises and practical tasks to be solved immediately after the theoretical part is presented. (Student talking about MAL)

As this student of an interactive course format states, active and collaborative learning approaches are valuable tools to support and engage learners in classroom settings. It is well established that collaborative assignments and interactions among students and instructors support the knowledge transfer and enhance the conceptual understanding of the learning concepts and the students' problem-solving abilities (Hake, 1988; Augustine, 1990). Many modern pedagogical models based on constructivist approaches integrate such interactive interactions in classroom settings. Most of these models focus on fostering the learner's understanding of the taught concepts. However, in self-directed learning scenarios, such as home assignments or distant learning students would need more motivating and engaging support.

The learning model Motivational Active Learning (MAL) is one successful implementation of such learning activities and is used in classrooms to engage students in an interactive and motivating way. MAL is inspired by the active learning format TEAL (Technology Enabled Active Learning), which reformed the way physics is taught at the Massachusetts Institute of Technology (Dori & Belcher, 2005). For MAL, TEAL's main features are generalized for other fields than physics and enriched with further engaging design elements inspired by game design theory and gamification. It uses a mix of mini lectures, interactive assignments, collaborative activities, interactions with the instructor and peers, and feedback methods motivated by gamification strategies. Integrating game design elements in such settings can be used to create an exciting and motivating learning atmosphere through engaging and in-time feedback (such as badges, points, rankings), constant challenges and mini-tasks (small assignments with immediate feedback), and positive reinforcement (reward of extra work instead of punishment of failures) (Pirker et al., 2014; Sinha, 2012)).

While this and similar methods have been proven to be successful in classroom settings, we want to go a step further and discuss MAL's capabilities also for blended and fully virtual scenarios. More and more learners tend towards virtual and digital learning. Tools such as MOOCs (Massive Open Online Courses) help teachers to provide the learning content and assignments in a user-friendly and assessable online environment to a large number of students. However, many concepts of successful constructivist pedagogical models are hard to integrate in online environments. Thus, online and self-directed courses often suffer from high drop-out rates, and reduced success rates. It is crucial to map different online activities to engaging features of active learning models to support and motivate learners.

In this chapter we discuss the pedagogical approach MAL with focus on the gamification and active learning aspects. The chapter is divided into three major parts. In the first part we describe related work with focus on online learning solutions. In the second part we introduce MAL and explain it based on (1) blended learning scenarios and (2) fully virtual scenarios. We conclude by discussing the prospects, the potentials, implications, and future work.

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