Chapter 20
Motivational Active Learning in Blended and Virtual Learning Scenarios:
Engaging Students in Digital Learning

Johanna Pirker
Graz University of Technology, Austria

Lisa Maria Tomes
Graz University of Technology, Austria

Maria Riffnaller-Schiefer
Graz University of Technology, Austria

Christian Gütl
*Graz University of Technology, Austria &
Curtin University, Australia*

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.

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 understand-

ing 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.

BACKGROUND AND RELATED WORK

Gen Y and New Forms of Learning

Our modern world has changed dramatically over the last century and is vastly influenced by various media and technologies, such as electronic games, computer, mobile devices, social media, and the participatory web. Consequently, learning has also significantly changed from passive and repetitive learning to active learning with new tools. After the generations of the "Baby Boomers" born between 1945 and 1965 space explorer generation, and the "Generation X" born between 1965 and 1985 influenced by the growth of mass media, the "Generation Y" or "Gen Y" born after 1985 is grown up with computers and mobile phones (Wikipedia, 2015). Gen Y is influenced by a world which is connected, accessible, interactive, and open. Gen Y can be characterized as "individualistic, independent, confident, ambitious, team-oriented, direct, empowered, and driven achievers who depend on technology as their support system". Gen Y learning must be

Related Content

Use of Blended E-Learning Resources in Higher Education: An Innovation from Healthcare Training

Catharine Jenkinsand Andrew Walsh (2011). *Streaming Media Delivery in Higher Education: Methods and Outcomes (pp. 368-386).*

www.irma-international.org/chapter/use-blended-learning-resources-higher/55036

Leveraging New Media as Social Capital for Diversity Officers: A How-To Guide for Equity, Diversity, and Inclusion Professionals Seeking to Use Social Media to Carve a Niche in the Social Networking Space

Kindra Cottonand Denise O'Neil Green (2014). *Cutting-Edge Technologies and Social Media Use in Higher Education (pp. 294-319).*

www.irma-international.org/chapter/leveraging-new-media-as-social-capital-for-diversity-officers/101178

Institutional Research (IR) Meets Knowledge Management

José L. Santos (2006). *Knowledge Management and Higher Education: A Critical Analysis (pp. 93-114).*

www.irma-international.org/chapter/institutional-research-meets-knowledge-management/24970

Multi-Faceted Professional Development Models Designed to Enhance Teaching and Learning within Universities

Donald E. Scottand Shelleyann Scott (2012). *Informed Design of Educational Technologies in Higher Education: Enhanced Learning and Teaching (pp. 412-435).*

www.irma-international.org/chapter/multi-faceted-professional-development-models/58397

The Application of Transdisciplinary Theory and Practice to STEM Education

Susan Malone Back, Heather Greenhalgh-Spencerand Kellilynn M. Frias (2016). *Handbook of Research on Technology Tools for Real-World Skill Development (pp. 42-67).*

www.irma-international.org/chapter/the-application-of-transdisciplinary-theory-and-practice-to-stem-education/139681