

Chapter 27

Enterprise 2.0 in Engineering Curriculum

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ABSTRACT

Engineering education is facing a challenge to bring e-business closer to student engineers. Enterprise 2.0 application in engineering education advances engineering students' enterprise for the development of innovative products, processes, and services. The aim of the research is to analyze student engineers' Enterprise 2.0 application underpinning elaboration of pedagogical guidelines on student engineers' Enterprise 2.0 application in engineering curriculum. The meaning of key concepts of Enterprise 2.0 and engineering curriculum is studied. Moreover, the study indicates how the steps of the process are related following a logical chain: Enterprise 2.0 → engineering curriculum design → modelling Enterprise 2.0 application in engineering curriculum → empirical study within a multicultural environment. The present empirical research was conducted during the Baltic Summer School "Technical Informatics and Information Technology" in 2009, 2010, and 2011. The findings of the research allow drawing the conclusions that student engineers' Enterprise 2.0 application in engineering curriculum is efficient.

INTRODUCTION

Engineers succeed harder to find a job: engineer entering the service area has changed from working permanently at a large-scale enterprise to accepting project-related orders of large-scale enterprises by free engineers' office (Bassus, Wolfgramm, 2009,

p. 38). Starting own business is a viable solution to overcome the unemployed or migrant status student engineers are exposed to.

Engineering curriculum is facing a challenge of Enterprise 2.0 application that brings e-business closer to student engineers and advances their enterprise.

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Aim of the research is to analyze student engineers' Enterprise 2.0 application underpinning elaboration of pedagogical guidelines on student engineers' Enterprise 2.0 application in engineering curriculum.

The remaining part of this paper is structured as follows: The introductory background section demonstrates the authors' position on the topic of the research. The following part of the chapter involves five sections. Section 1 introduces theoretical framework on Enterprise 2.0 in engineering education. Research design is revealed in Section 2. The associated results of the empirical study are presented and interpreted in Section 3. Findings of the empirical study are analyzed in Section 4 followed by issues, controversies and their solutions. Afterwards, pedagogical guidelines on student engineers' Enterprise 2.0 application in engineering curriculum are given. Finally, some concluding remarks and a short outlook on interesting topics for further work are elaborated.

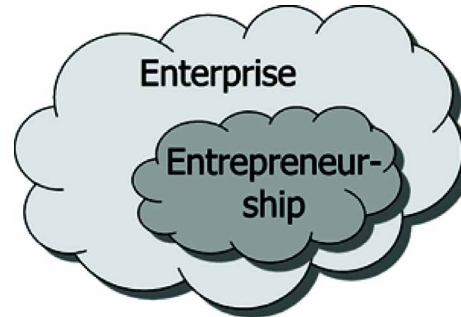
BACKGROUND

The conceptual framework of the present research is based on the approach to enterprise considered in a broader social context than within business framework only (Oganisjana & Koke, 2008, p. 225). Therein, the term *enterprise* involves *entrepreneurship* as shown in Figure 1 (Zaščerinska, Ahrens, & Bassus, 2011, p. 475).

Enterprise is defined as an individual complex capability to identify, generate and realize new socially valuable opportunities in the personal, professional, cultural, economic and other contexts of the social life (Oganisjana & Koke, 2008, p. 225).

The methodological background of the present research is based on System-Constructivist Theory. System-Constructivist Theory and, consequently, System-Constructivist Approach to learning introduced by Reich (Reich, 2005) emphasize that human being's point of view depends on the subjective aspect:

Figure 1. The relationship between enterprise and entrepreneurship



- Everyone has his/her own system of external and internal perspectives that is a complex open system and
- Experience plays the central role in the knowledge construction process (Maslo, 2007, p. 39).

MAIN FOCUS OF THE CHAPTER

Theoretical Framework

The theoretical framework of the present contribution involves the meaning of the key concepts of *Enterprise 2.0* and *engineering curriculum design* studied.

Enterprise 2.0 Definition

The present research is based on a widely accepted conception of Enterprise 2.0 as use of Web technologies for enterprise (business) purposes (Bassus, Ahrens, & Zaščerinska, 2011, p. 376).

Typical Enterprise 2.0 includes corporate blogs, wikis, feeds, and podcasts (Vossen, 2009, p. 38) as shown in Figure 2.

Blogs are a common way to stay in touch with customers, to inform about new products and to receive immediate feedback; they can also be used internally in order to discuss specific topics among the staff of an enterprise, in particular if people

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