Chapter 12
A Way Out of the Information Jungle:
A Longitudinal Study about a Socio-Technical Community and Informal Learning in Higher Education

Isa Jahnke
TU Dortmund University, Germany

ABSTRACT

The emergence of community-oriented Information and Communication Technology platforms, e.g., forum software or wikis, the penetration of media in society has increased. In academia, forms of communication and cooperation to share knowledge are changing under open Web 2.0 conditions. In this regard, teaching and learning scenarios are moving towards technology-enhanced lifelong learning communities. This contribution presents the results of a longitudinal study of a Socio-Technical Community (STC) launched in 2002. The STC, which supports the study organization as well as teaching and learning in higher education, has been evaluated from its founding to its sustainable development and transformation phase in 2009. The study shows results in three specific areas: The learners' satisfaction with the STC, the type and quality of use, and if the STC is a helpful support for students to progress through their studies more efficiently than without an STC. The central conclusion is that spaces for computer-mediated communication are important for students regarding informal learning about organizing their own studies. Informal learning with a socio-technical community is more effective than without due to its individualization of learning in large groups.

INTRODUCTION

In the past decade, new community-oriented applications of Information and Communication Technology (ICT) have emerged, e.g., groupware systems or social software, Web 2.0 platforms (e.g., box.net; twitter). These applications have the potential to transform social systems (e.g., groups, companies, universities, non-profit organizations) into socio-technical networks, where socially and technically supported relationships are highly interwoven. In contrast to general web-based, online or virtual communities *in society* such as Wikipedia or Facebook, this paper is focused on socio-technical communities *in academia*, in particular higher education (HE). The challenge in creating such socio-technical systems – within organizations – is to design the interaction between social processes, educational elements and technical components. Whether this type of system really contributes to knowledge sharing and learning within organizations depends also on the culture and on the degree to which these socio-technical structures are adjusted to each other and how they are integrated. In other words, it depends on how efficiently and successfully the technical system interacts with the social system, and vice versa (Herrmann, Loser, & Jahnke, 2007).

When designing a socio-technical learning system in higher education, the overall research question is how to design (develop, introduce, evaluate) technology-enhanced learning successfully and what elements can be designed (general model). One answer is given by Jahnke, Terkowsky, Pleul, and Tekkaya (2010). A "successful design" depends on following three factors.

1. First, the degree of structural coupling (degree of interdependency) of the three elements and its complex interconnections: Are the elements strong connected and formalized, or flexibly usable? How closely, loosely are the elements connected? The three elements are technical elements (e.g., learning management systems; social media, socio-technical community platform), social/organizational structures (e.g., forms of communication and participation, roles of instructor and students), and pedagogical/educational concepts (e.g., informal learning approaches, motivational systems).

2. Second, the degree of quality: This degree shows how well the elements interact, for example, the greater the unity among these three elements, the better they share knowledge and co-construction of knowledge can take places, the better they learn.

3. Third, "a successful design" depends on what the user's role is. Different target groups, people in different roles have different cognitive conceptions of success. Instructors, students, university managers, pedagogical experts, e-learning experts, define it in different ways. A good design includes different views, or at least, supports a common understanding (Herrmann et al., 2007). These three dimensions drive the design-based research process.

So, the implementation of Web 2.0 conditions in higher education depends on the design of a socio-technical system with educational elements (Wasson, 2007) – including motivational systems, different forms of participation, supporting me-centricity (Twenge, 2006), fostering active communication, and enabling a flow experience (to increase the motivation of learners to learn). In particular, an appropriate balance between informal and formal structures is needed (Jahnke & Koch, 2009). Prensky (2001) calls this new form of a networked generation of young people "digital natives", born in the Web 2.0 century, like native speakers, also known as the "internet generation" (Palfrey & Gasser, 2008).

In 2001, a project was started to initiate a socio-technical learning community to aid study organization, and to support teaching and learning in higher education. By applying the Design-Based

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