

# Designing Learning Environments with Social Media

Frederik G. Pferdt, Visiting Scholar,  
Center for Design Research, Stanford University  
424 Panama Mall, Stanford, CA 94305-2232  
fgpferdt@stanford.edu

**Abstract:** Social Media is changing the way we learn and offers potential for the design of innovative learning environments. But how can we use these technologies to improve learning and design learning environments? This research shows some insights of a three-year school project using social media in learning environments and offers an innovative research approach producing theory and solutions to problems of educational practice for a change in education.

## Problem-design

In the educational discussion about using technology to enhance learning, one focus is laid upon new technologies like Web 2.0 and social media. It is said that these technologies have the potential to offer new solutions for learning and teaching. Different research shows that the usage of new technologies such as social media and Web 2.0 are aligned with tremendous changes for the socio-cultural world and the individual and collective living environment (life-world) of individuals and groups. In this sense, social media simultaneously drives developments forward and challenges the situation and there is lots of possibility for learning with social media but teachers haven't been successful incorporating into classroom and the need of finding media-didactical concepts, instructional designs and solutions for learning and teaching with social media is increasing.

Social media can be interpreted as a generic term for simple and flexible web applications, which support co-operative sharing and editing of content. Essentially, social media is "social" only in the specific context of cooperation and sharing, and the added value emerges through the participation of users. Four main characteristics of social media can be identified: Participatory media creation, identity building, networking and public knowledge space. So it can be claimed that social media is not so much a technological innovation but more a philosophy of how to communicate, collaborate, and participate on the web.

In the context of education, social media offers various opportunities for a learning-centered approach as it allows the provision of the essentials for productive learning, such as interaction between individuals, independence of time and place, collaboration, feedback and support mechanisms as well as providing learners with additional capabilities concerning knowledge creation.

Based on these potentials of social media for learning, I address in my research the following question: How can learning environments be designed with social media?

## Research-design

The aim of my research is firstly to introduce empirical and theoretical studies about the influence of social media on individuals and groups, and to analyze the specific potential for learning and teaching based on the current discussion in the educational technology research literature.

Educational design parameters, based on the constructivist and constructionist learning paradigm, offer a solution to the problem of tacit knowledge as they focus particularly on the problem-based situation and the orientation towards genuine problem definitions, as well as on situated cognition and collaboration between learners. The position of constructivist learning theories emphasizes the need to create meaningful learning environments, which are designed as authentic problem contexts. Social media offers possibilities to achieve learning as described as it can offer the designing of learning environments on these education design parameters and of constructivist theory. Social media in this understanding supports the learning process as tools and fosters active knowledge construction.

Secondly, the main part of the research consists of the design, theoretical grounding, examination and evaluation of two designed and implemented prototypes of learning environments with social media in a three-year design project in a school in Germany. The research project "KooL" (co-operative learning in web-based learning environments) is part of a research program in vocational education in Germany. The design, implementation, evaluation and re-design are conducted, not only by the researchers at the Department of Business and Economics

Education at the University of Paderborn, but jointly with teachers at a vocational education school in Rheinbach, Germany. In this research project, social media like weblogs, wikis and podcasts are used to design the learning environments in vocational education and two prototypes of learning environments are developed collaboratively between teachers and researchers.

The research will highlight the main ideas of educational designs of learning with social media based on the experience of this three-year research project, where data was drawn from a quantitative and qualitative approach using online questionnaires and a causal online sentence completion questionnaire, where teachers and students had to give reasons for their answers concerning questions for teaching and learning with social media. 555 teacher and 1051 learner causal answers were produced and analyzed using a qualitative content analysis method. The answers give access to the successful usage and problems of social media as a tool for designing learning environments.

This detailed description and analysis of the conditions of the respective learning environment provides insights concerning the usage and the design of learning with social media and thus will help others to use social media efficiently in educational settings.

Research in this field often produces impressive empirical data, but at the same time fails to offer solutions for practical problems and transferable designs for learning and fails to have impact on educational organizations. Consequently, the question regarding an adequate research paradigm, which combines two diametrically opposed poles – basic and applied research – is crucial. Basic research, on one hand, is a research position, which is characterized by the objective of gaining more knowledge, data or understanding of a subject or field of study, without having a specific application of theory in mind. This research is often interpreted as testing theoretical hypotheses to produce universal theory in an experimental design, and participants are subjects, who are assigned to treatments. On the other hand, applied research is aimed at using knowledge to solve a specific practical purpose or problem.

For this reason and lastly, a heuristic framework – the design-based research approach (DBR) – is derived and this paradigm is used as a methodological framework in the research project. DBR offer solutions to problems of educational practice and, consequently, provides communicable developed theories, which are context-sensitive, useful for educational practice and ultimately increase scientific knowledge on learning and teaching.

## **Solution-Design**

This research provides interesting insights about the effective use of social media in enhancing teaching and student learning with social media. Through these insights, a model of design principles for designing learning environments with social media will be developed. It is hoped that the insights as captured in this research will influence the future design of teaching and learning in education, in particular regarding the ne(x)t generation and will provide innovative ideas for teacher education.