Editorial

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Biographical notes: Dr. Isa Jahnke is an Assistant Professor at the Centre for Research on Higher Education and Faculty Development of the Dortmund University of Technology, Germany. As a Social Scientist, she worked at the Faculty of Computer Science and the Department of Information and Technology Management for seven years. Her research focuses on new forms of computer-mediated human interactions and structures by using new media. Her PhD thesis about the dynamics of social roles in the field of knowledge management and sociotechnical communities within organisations was published in June 2006. She is currently a member in the EU project 'Platform for eLearning and telemetric experimentations', which attempts to integrate live experimentations from a real laboratory via video-based access into a lifelong learning platform. According to a design-based research, the challenge is to create an innovative e-learning environment that combines telemetric experimentation, multiple perspectives, self-directed learning and community communication.

Dr. Piet Kommers is an Associate Professor at the Department of Media, Communication and Organisation of the University of Twente, the Netherlands. He pioneered in media-based education and undertook new ways to represent prior knowledge. Concept-mapping methods were articulated in terms of learning styles. Media-like gaming and 3D virtual environments were tested against traditional instruction and proved to elicit students' naïve concepts more vigorously. His recent interest is on how media affect societal awareness and the creative attitude towards finding solutions to survive the financial crisis. The notion of the networked society increasingly becomes tangible in web-based transient communities. Based on this perspective, the question becomes more and more opportune how education is going to anticipate to this new social reality. Will strategic networking become a curricular goal in itself?

New buzzwords have become part of our daily lexicon: Web 2.0, social software and social web are often used as synonyms. These concepts focus on new or existing software systems that are influenced by human communication and collaboration.

Web 2.0 is – as O'Reilly (2005) said – a "second generation of internet-based services". The common idea of Web 2.0 or social software is to enable people to collaborate and share information online in new ways, such as in wikis, communication tools (*e.g.*, weblogs), social networking services (*e.g.*, Xing or Facebook) and social tagging services (*e.g.*, del.icio.us).

To describe such new concepts and forms of internet-based applications, it is appropriate to compare Web 1.0 and the newer Web 2.0. Table 1 confronts the two concepts and lists examples from Web 2.0 usage in academia.

Table 1 Shift from Web 1.0 to Web 2.0 in academia

Web 1.0 (mainly 1992–2000)	*Web 2.0 (shift since 2001)*	*Examples:*[1] *Web 2.0 goes academia*
Encylopedia Britannica Online	wikipedia.com	Wikis for own lectures and seminars supporting teaching scenarios or other collections like pepysdiary.com[2]
Personal websites	Blogging (*e.g.*, IBM developerWorks Blogs[3])	Netvibes.com[4] (based on RSS feeds) in combination with blogs for e-learning scenarios
Publishing	Participation (*e.g.*, discussion boards)	*e.g.*, BibSonomy[5] in combination with Jabref for the distribution of literature, citations and publishing in a nontraditional way
Directories (taxonomy)	Social tagging, social bookmarking (*e.g.*, del.icio.us[6])	
Content management systems	Wikis	Open University based on Netvibes Ecosystem: http://www.netvibes.com/openlearn ('Free higher education for everyone')
Telephone	Instant Messaging (IM) (*e.g.*, ICQ), Voice over Internet Protocol (VoIP) (*e.g.*, Skype)	Sitting in a classroom and telling the teacher your ideas, questions or findings by using IM: comments will be shown on the board immediately
Non-internet-based Global Positioning System (GPS)	New location-based services (mobile devices, *e.g.*, Dodgeball,[7] Twitter)	Finding researchers with mobile phones at international conferences ('tell us where you are and we will locate researchers in your network so you can meet up')
News groups	Social networking (*e.g.*, facebook.com and xing.com[8])/ Online communities	Facebook.com for searching and finding researchers and practitioners, *e.g.*, e-science community
→ Download of information: one-to-many	→ Communication and collaboration about information, many-to-many	→ Creating innovative ways for research and teaching

Note: [1–8] For a more complete discussion, please see the Notes section on page 7.

Source: Inspired by O'Reilly (2005)

Web 2.0 and social software focus on new or existing software systems that are influenced by human communication and collaboration. In other words, Web 2.0 relies heavily on social interaction and social web-based applications generate and require a human-centred design approach.

The number of users of Web 2.0 applications in private settings (*e.g.*, leisure) is very high. However, in organisations and institutions, Web 2.0 concepts or such combined applications are still at an early stage. The same is true for universities. There are some Web 2.0 tools in universities, particularly wikis and blogs, but the usage of these tools to support teaching, learning or research is not yet fully developed. The question of how Web 2.0 can support community-based learning or research processes in academia is not yet satisfactorily answered.

This special issue about innovative scenarios for Sociotechnical Communities (STCs) gives answers to the following questions: What Web 2.0 applications exist in universities, research or learning? Do Web 2.0 applications in academia make a difference to existing internet applications like e-mail, content management systems or news groups? Are there success stories or success criteria of Web 2.0 usage in academic fields? What changes are observable or essential when introducing Web 2.0 concepts in teaching or research settings?

This special issue has collected proposals for academic practice with Web 2.0 and wanted to share practical experience or research results about using Web 2.0 in teaching and research, for example, e-learning, scientific communities or research teams utilising Web 2.0. It aims to specify new research questions dealing with Web 2.0 in academia and discuss new research methods and their challenges in this topic (*e.g.*, theory of text interpretation).

This discussion is framed around the concept of STCs. In contrast to web-based communities in society such as Wikipedia or Facebook, an STC is part of an existing formal institution and is different from virtual communities since it delivers a kind of interaction space for enabling communication between members and others within a university, faculty, organisation or company. An STC has the potential to reduce social complexity and information overload from the official organisation and makes it easier to get only the information that a member needs at a given time (Jahnke, 2008).

Please find the concept of STCs in more detail in the first paper, 'Web 2.0 goes academia: does Web 2.0 make a difference?', written by Isa Jahnke and Michael Koch. In their article, they describe the influence of Web 2.0 on teaching and learning arrangements as well as research groups and how it affects innovative forms of cooperation. They picture Web 2.0 as a sociotechnical phenomenon and show how technical and social systems differ to define an STC and a criteria for it. According to the 'shift from teaching to learning', they show the potentials of STCs in teaching and learning environments. Furthermore, their paper presents some potentials and good-practice examples of the usage of STCs for research teams.

In addition to this introduction and the first paper, this special issue includes four papers about teaching and learning in universities and analyses specific case studies. Furthermore, two papers show the potential of social networking, Web 2.0 and STCs in research teams and scientific communities and finally, one contribution focuses on learning and networking in Small- and Medium-sized Enterprises (SMEs).

Angela Carell and Isabel Schaller describe a case study about a class at a university that includes Netvibes.com. Their paper about 'Scenario-based orchestration of Web 2.0 applications in university teaching and learning processes: a case study' demonstrates how a technology-enhanced environment can support scenario-based learning processes in a face-to-face class at a university. The authors design a blended learning scenario according to Web 2.0 principles such as flexible integration, simple manageability, participation, more access to the learning scenario and co-activity (active participation). Furthermore, the paper shows the effects that this will have on the cooperative learning process of students. Finally, they suggest a general pattern of orchestration including the elements of:

- learning scenario (didactic model, *e.g.*, project-based learning)
- the mode of task (*e.g.*, design task or analysis)
- the mode of learning (*e.g.*, face-to-face, online or mixed)
- the length of the learning session (*e.g.*, one week, one semester)
- the role of technical support (*e.g.*, enhancing the collaboration process during face-to-face sessions and beyond)
- Web 2.0 applications (*e.g.*, Netvibes, blogs, BibSonomy, text editor, administration tool, Really Simple Syndication or RSS feeds), which should be suitably combined.

Alessandra Agostini, Giorgio De Michelis and Marco Loregian present their experience about 'Using blogs to support participative learning in university courses'. The courses took place at the University of Milano-Bicocca, Italy. Applying a blog as informal support for the traditional structures in the classroom, the authors describe the appropriateness of blogs with regard to three key concepts for fostering participative learning:

1 the creation of a community knowledge base
2 the process of knowledge creation and transfer
3 the facilitation of the knowledge gate-keeping role.

The results show an improvement of students' participation in the learning experience. For example, the posts were often helpful and cited during lectures and project presentations and triggered discussions during regular lessons.

What do students do after leaving the lecture hall? Some students will reflect on the contents of the lesson and some of them will not. In any case, the learning process could be better supported than in conventional teaching settings. For example, a bridge between the lectures and lessons learned after leaving the lecture hall could be designed and foster knowledge sharing. In this special issue, Markus Heckner and Silke Schworm show that tagging and blogging offer the opportunity to actively engage students in such a follow-up course work. In their paper, 'The tagblog: exploring social web user contribution to encourage students to actively engage in learning content', they present the results of a case study within an undergraduate class. The service called 'tagblog' combines blogging, tagging and rating and supports the development of a shared knowledge repository. The authors analyse blog posts, tags and comments to examine how user contributions reflect the active processing of learning content.

'Web 2.0 project-based learning in higher education: some preliminary evidence', written by Francesca Grippa and Giustina Secundo, shows that Web 2.0 applications can change the way a distributed learning community interacts. The authors designed a computer-supported learning community to support students coming from Morocco, Tunisia, Egypt and Jordan and are involved in an international master's programme. Their study concludes that Web 2.0 tools can foster learning effectiveness such as learner's satisfaction, knowledge creation and performance. A second result is that learners use wikis more than blogs to collaborate with peers, tutors or mentors.

An example about the potential of Web 2.0 in research teams is given by Aurélien Bénel and Christophe Lejeune in this special issue. Their paper, 'Humanities 2.0: documents, interpretation and intersubjectivity in the digital age', describes the possible changes in 'how to do' qualitative research methods like data analysis and document interpretation with Web 2.0. For the disciplines of archaeology and sociology, the authors describe that software can be designed and prototyped on notions such as document-driven research, interpretation and intersubjectivity to provide an appropriate tool for researchers to do their data analyses collaboratively. Examples are computer-supported collaborative text interpretation and cooperative qualitative evaluation.

'Social networks as an approach to the enhancement of collaboration among scientists', written by Richard Lackes, Markus Siepermann and Erik Frank, shows examples of online social networks, for example, Facebook.com, LinkedIn.com or Xing.com. Such Web 2.0 applications help foster social relationships and represent business relations. Employees also use such technical systems to manage projects and tasks. However, their study shows that web-based social networks in research communities are used in a different way. From their point of view, the existing technical solutions of social networking applications do not meet the requirements of a research team or scientific community. Therefore, they suggest a conceptual design for the enhancement of online collaboration for academic communities and research teams including modules like:

- networking
- tagging
- projects
- discussion
- literature
- evaluation by using the skills and expertise of the scientific community.

Ileana Hamburg and Timothy Hall describe an e-learning scenario for SMEs with regard to vocational training. Their paper, 'Learning in social networks and Web 2.0 in SMEs' continuing vocational education', shows potentials for SMEs to support their employees as lifelong learners and continuous learners. A main problem is that in most SMEs, learning and work activities are separate. The authors show the advantages of the development of Communities of Practice (CoPs) and picture an example of a project where SMEs could learn from the academic context on how to use Web 2.0.

One result is that vocational training technologies need to be redesigned, for example, most SMEs need an appropriate orchestration of Web 2.0 tools to support learning in combination with work processes.

An intriguing question that emerges when having read this special issue is: How will Web 2.0, in its social and semantic trend, evolve towards the next step? This is the seminal question and challenge for this journal to cope with. As a precursor to the answers coming in the remaining issues of IJWBC, we would like to share our premature understanding. It is that the social affinity of Web 2.0 is only the first step towards reaching community awareness and social mash-ups. The mash-up, in its technological connotation, is that both queries and data results can flow in a flexible way between applications like social networks, GPS and transaction applications. In its social sense, mash-ups are the social gatherings that reflect many of its members' aspects simultaneously. The community metaphor essentially means that persons also 'meet' indirectly as, for instance, reputation travels via indirect ways; if my brother-in-law (who is a hair dresser) recommends a newly arrived piano teacher, it may have less effect than him recommending a new hair shampoo. Even more subtle is how group preferences evolve and become extinct. We predict that web-based systems will play crucial roles in how individuals affect group opinions and vice versa.

If you envisage alternative road maps for the next generations of social software, you are welcome to deliver your article for a next issue of this journal.

Acknowledgements

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O'Reilly, T. (2005) 'What is Web 2.0? Design patterns and business models for the next generation of software', http://tim.oreilly.com/ (downloaded 2 June 2007).

Notes

1 These examples are based on a two-day workshop on Web2.0 in academia, which was held on October 2007 by the 'Information and Technology Management' group at the University of Bochum. The contributors were Angela Carell, Thomas Herrmann, Isa Jahnke, Kai-Uwe Loser, Michael Prilla, Carsten Ritterskamp, Isabel Schaller, Rainer Skrotzki and Marc Turnwald.

2 Pepysdiary.com "is a presentation of the diaries of Samuel Pepys, the renowned 17th century diarist who lived in London, England. A new entry written by Pepys will be published each day over the course of several years; 1 January 1660 was published on 1 January 2003" (retrieved 9 September 2007 from http://www.pepysdiary.com/). People discuss Pepys' life and his diary entries by posting their own annotations.

3 Retrieved 9 September 2007 from http://www.ibm.com/developerworks/blogs/.

4 Netvibes (launched in 2005) is different from traditional web portals. Netvibes "lets individuals assemble all in one place their favourite websites, blogs, email accounts, social networks, search engines, instant messengers, photos, videos, podcasts, widgets, and everything else they enjoy on the Web" (retrieved 17 December 2007 from http://www.netvibes.com/#).

5 "BibSonomy is a system for sharing bookmarks and lists of literature. When discovering a bookmark or a publication on the web, you can store it on our server. You can add tags to your entry to retrieve it more easily" (retrieved 17 December 2007 from http://www.bibsonomy.org/).

6 Del.icio.us is a social bookmarking site. By using tags, people can organise their own bookmarks and see what other people with similar tags have. This supports the idea of easily finding information from the internet. "Tags are one-word descriptors that you can assign to your bookmarks on del.icio.us to help you organize and remember them. Tags are a little bit like keywords, but they're chosen by you, and they do not form a hierarchy. You can assign as many tags to a bookmark as you like and rename or delete the tags later. So, tagging can be a lot easier and more flexible than fitting your information into preconceived categories or folders" (retrieved 9 September 2007 from http://del.icio.us/help/tags).

7 Dodgeball helps find friends when people are in different places: "Tell us where you are and we'll send messages to all your friends letting them know, so you can meet up. (…) we'll locate friends of friends within 10 blocks (…) find venue locations and broadcast messages to all your friends" (retrieved 9 September 2007 from http://www.dodgeball.com/).

8 "Facebook is a social utility that connects you with the people around you" (retrieved 9 September 2007 from http://www.facebook.com/). Similar to Facebook (especially in the USA), Xing.com is popular in Europe.