

From the Editor in Chief**INNOVATION, LEARNING, AND COMMUNITIES**

Päivi Häkkinen

*Finnish Institute for Educational Research
University of Jyväskylä, Finland*

Research in the interdisciplinary field of human–technology interaction takes many forms and perspectives. However, no matter which lens is used in evaluating the interrelationship between the human and the technology or which technology is being explored, issues of learning, context, use intention, and community form essential components of all research because they are components of all technology use. Of these four components, learning is affected by and affects the other three.

In recent decades, strong focus on shared expertise, participatory activities, and other forms of social collectives have moved to the forefront of attention in the fields of learning and work and everyday practices. Theories of learning have increasingly emphasized social forms of learning as opposed to focusing on individual minds (e.g., Greeno, 1998; Stahl, 2005). Socially oriented theories also have been reflected in the field of design, focusing on codesign of applications and environments for groups and communities. In light of these trends, various kinds of collectives, such as networks and communities, have been approached in the research of different disciplines, such as in sociology, educational science, anthropology, and in communication studies.

A variety of definitions have been provided for the concept of community (see, e.g., Bruhn, 2005). One of the typical features of traditional local communities is close ties with personal relationships (e.g., Mercer, 2000; Pöysä & Häkkinen, 2009). Today's communities can cross the borders between physical and virtual spaces—especially through the use of social media—as well as across multiple communities simultaneously (Pöysä & Häkkinen, 2009).

Moreover, the nature of partnership and sense of belonging to communities might vary. Sometimes the participants prefer looser ties with each other. In those cases, we often refer to these relationships as networks instead of communities. Alternatively, communities can refer to close relationships between participants or among the user practices or interests. Many of these issues are envisioned within the concept of a community of practice, although Li et al. (2009) demonstrated how the definition, goals, and practices of that term continue to evolve and are applied differently.

Thus, a relevant question for researchers, technology designers, and implementation advocates is when today's online networks can be called communities. The emphasis on participation, net-

working, and the shared creation of content and knowledge in Web 2.0 practices offers new kinds of possibilities for forming communities (Bonderup Dohn, 2009). In the global environment and immediacy of social media, the question arises whether communities always necessitate physical meetings or even an interpersonal relationship. So a tension remains regarding expectations of technology in regard to community building: Despite the rhetoric, can technology alone build community? In my view, technology certainly is a core enabling platform in the global environment. However, many other elements—both tangible and intangible—are equally contributory to the shared sense of community among members.

Another stream of research and discussion, especially in the field of educational science, is that of informal learning. While mainstream research on educational science has focused on formal learning and institutionalized schooling, discussion has recently moved to how students participate in complex social and cultural activities outside of formal educational settings (Barron, 2006; Bransford et al., 2006; Marsick & Watkins, 2001). This includes the personal practices and implications of tacit knowledge (Armstrong & Mahmud, 2008; Eraut, 2000) and self-directed (Boyer & Kelly, 2005; Brookfield, 1986) and self-regulated (Järvelä & Järvenoja, 2011; Loyens, Magda, & Rikers, 2008; Schunk, 2005) learning, even within a social learning context. The synergy and the learning potential at the intersection of informal and formal learning activities are expected to shape learners' experiences in significant ways, whether those learners are within an education institution, a work environment, or a social setting. Currently, personal engagement, typical of informal learning, is taken as an ideal model even within formal educational settings, but such an approach also can bring challenges and counterproductive effects, such as an increase in off-task activities or misconceptions in core areas. Furthermore, the challenge remains for institutionalized educational curricula, pedagogical practices, and leadership to acknowledge the importance and value of informal skills and competencies (Barron, 2006). The traditions, structures, and processes of formal education do not support the utilization of informal learning resources. For example, Korkeamäki and Dreher (2011) stated that Finnish first-grade classroom instruction does not take into account children's developing competencies with newer technologies, even though the national core curriculum strongly emphasizes the link between what is learned at home, including media literacy and ICT skills, and what is taught at school.

The challenges of integrating informal learning, peer (i.e., community of practice) learning, and social media as a support of learning and knowledge generation exist in non-educational organizations as well. These are particularly important in regard to the introduction of any innovation, such as ICT adoption in organizations. An innovation can refer to an idea, practice, or object that is perceived as new or significantly renewed by an individual or other unit of adoption. Rogers (2003) introduced the theory of diffusion of innovation, referring to the process by which innovation is communicated through certain channels over time among the members of a social system. And as in the introduction of new knowledge in any setting, multiple characteristics of an innovation, of the individual user, and the individual's specific perceptions of the two impact the learning about and adoption of the innovation.

Contemporary mobile tools for social interaction, for engagement in the economy and work, and for learning and personal research, are crucial for almost any everyday context. Therefore, in the process of introducing innovation to individuals, for example, in the field of e-commerce, the developer and introducers need to assist potential users in forming a positive attitude toward the innovation. This essential process involves not only the study on the

effects of consumers' personal traits on their perceptions of and attitudes toward using mobile devices for communications and commerce, but also which mental schemes and expectations undergird those perceptions and, ultimately, the potential user's learning about and application of the innovation. These also are crucial elements to be taken into account in design of new products.

This issue of *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments* presents research that explores some of these important issues in innovation adoption and learning to implement innovations. Each paper refers to an aspect of interaction design and adoption from the perspective of the user experience.

Our first paper is by **Korkeamäki, Dreher, and Pekkarinen**, who present a timely study reflecting the challenges of informal learning. They focus on young children's use of media at home and if and how it impacts their formal literacy learning. They base their work on a parent questionnaire, through which they investigated Finnish preschool and first-grade children's use of print and electronic media in the home and their literacy development. Their findings indicate that these children are frequent media users, including playing electronic games, but that the effect on literacy learning need not be negative. The results also indicate that preschool children play more games designed for learning while first graders play more entertainment games.

Kim and Hahn studied the effect of personal traits on consumer perceptions of young adults' mobile device use, as well as their attitudes toward mobile communication and commerce. This study shows that individuals' high-tech involvement and experiment proclivity were important factors influencing their perceived ease of use of mobile devices for communication. In addition, the study revealed that fashion/brand leadership had a positive effect on perceived enjoyment and perceived usefulness of mobile devices for communication. These findings suggest significant implications for a positive impact on young adults' attitudes toward using mobile devices for communication and commerce.

The article by **Lehane** is the second half of his study into intuitive design. Specifically, he discusses the Systems Acceptance Indicator, a validated survey instrument for assessing the user experience from a cognitive-ergonomic perspective. The action research discussed in this paper utilized grounded theory analysis to establish the data-driven emergent theoretical constructs that provided the system acceptance categories (criteria) for the survey. Lehane discusses the development of the theoretical rationale for classification criteria for the SAI survey, which came from applying concepts from a grounded theory analysis to users' responses to surveys and within focus group interviews. The users described the problems they encountered in the system requirements and implementation and, from those descriptions, the survey criteria surfaced classifications that grouped the issues and facilitated learning interventions.

The study by **Olatokun and Ntemana** investigated the influence of the five attributes of diffusion of innovation theory—relative advantage, complexity, compatibility, trialability, and observability—on university lecturers' use of information and communication technologies (ICTs). They used a structured questionnaire to collect data from 213 lecturers at the National University of Lesotho. The results of the study indicated that relative advantage, complexity, and observability had a positive effect on the lecturers' attitudes. The implications of this study offer insights into how university administrations, particularly in developing countries, can successfully support the adoption of ICTs within the higher education process.

We also include in this issue a book review: **Kai Tuuri** assesses Morana Alač's *Handling Digital Brains: A Laboratory Study of Multimodal Semiotic Interaction in the Age of Computers*. He acknowledges the book as an interesting contribution for human–technology studies. Alač offers insights for ethnographic research, science studies, interaction analysis or cognitive science, to name a few disciplines, by illustrating the issues related to the pervasively present embodiment in human meaning making and social interaction. The book also reveals how the bodily engagement is present in brain imaging data in an fMRI (functional magnetic resonance imaging) laboratory environment. However, Alač calls for social sciences to make its position clear within studies in the field of neuroscience.

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Author's Note

All correspondence should be addressed to
Päivi Häkkinen
Finnish Institute for Educational Research
University of Jyväskylä
P.O. Box 35
40014 University of Jyväskylä, FINLAND
paivi.m.hakkinen@jyu.fi

Human Technology: An Interdisciplinary Journal on Humans in ICT Environments
ISSN 1795-6889
www.humantechnology.jyu.fi