

★ Exploring both the social and business dimensions of the human component in human-technology interaction is the academic interest of a Finnish university. **Pekka Neittaanmäki** explains how interdisciplinary, collaborative research can benefit both of these aspects, in this engaging study

Bridging the gap between humanity and technology

Businesses have long viewed research and development as key to their competitiveness. Yet, in the 21st century knowledge society, where a company's reputation and markets can be worldwide, the motto for success is innovation and collaboration. Finnish companies have shifted their business models from traditional product-centred concepts to service-based approaches. The same is true for modern universities, because governments and societies expect scholarly research to drive domestic innovation. At the University of Jyväskylä in central

international – help surface areas and topics of need, and then provide insight into real-life applications for innovative knowledge and solutions.

“The Agora Center offers challenging and innovative environments for collaborative research and study”, states Pekka Neittaanmäki, director of the Agora Center and leader of the Industrial IT Group. “The feedback we've received from our external partners, as well as the students, has been excellent.” While the Center currently has four laboratories and several groups and centres involved in this research, the Center

child development and the factors supporting or endangering optimal development; the Industrial IT Group, which seeks to advance the technological know-how of networked global industries and the transfer of new technology to the business world; the Virtual Environment Center, which explores applications, interactions and programming architectures of computer graphics and virtual reality; and the collaborative learning environments projects that pair Agora's research with that of the Institute for Educational Research to address pedagogical and evaluation methods associated with eLearning.

In ancient Greece, the *agora* served as the meeting place where residents gathered to discuss, propose, and plan various aspects of their society. Retaining a space for mutual discussion and contemplation remains vital to today's academic communities, something that is reflected in the activities of the Agora Center's forums. The Agora ICT Forum brings together academic and business representatives of the communications technology fields to identify research and business opportunities and establish relationships and cooperative networks in the pursuit of scientific inquiry and application. The Social Innovation Forum networks Finnish and international researchers from multiple disciplines and other interested parties for information sharing, project collaboration, and knowledge advancement on aspects of social innovation for organisations concerned with performance, efficiency, and social security. And the Research Programme on Social Capital and Networks of Trust seeks to understand and explain exactly where and how social capital is created, and the impact of social capital in

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Finland, the Agora Human Technology Center exists to serve as the bridge between academia and the business world. Both in approach and process, innovation and collaboration embody the Agora Center's operation toward research outcomes.

Launched in 2002, the Agora Center produces interdisciplinary research on the human component of the human-technology interaction dyad. Collaborative research projects draw expertise from the University's faculties and departments that specialise in technology elements, such as information systems, mathematics, and computer science, as well as on human elements, that is, psychology, education, the social sciences, and communication. In addition, a network of external collaborators – from companies, the public sector, and third sector organisations, both domestic and

is actually an evolving network, with resources and facilities allocated as needed to address current research projects.

The research projects are conducted within thematic laboratories and research environments: the Mind Tech Laboratory, which has as themes learning, the evaluation of skills, and the neurological basis of perception; the Game Laboratory, studying and designing serious and entertainment games through a user-driven perspective; the User Psychology Laboratory investigates user behaviours with technologies and services in various interaction situations; and the Innoroad Laboratory, focused on the modelling, optimisation, and application of ICTs related to traffic, transportation, and the human risk factors in driving. Additional collaborative research originates in the Child Research Center, which explores



The Agora Center researchers engage technology users from a wide spectrum

the economic, labour, and political facets of society.

The Agora Center's emphasis on the shared process of scientific inquiry and application also finds expression in its online international peer-reviewed journal, *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*. This Open Access journal (www.humantechnology.jyu.fi) engages its authors, referees, and readers from around the world with articles from diverse disciplines—from user and design issues, to education and communication, to culture and social needs. *Human Technology's* emphasis on the human dimension—how humans affect and are affected by technologies—appeals to academics and business professionals alike.

“University research must serve the public good”, notes Mr. Neittaanmäki. “In addition to the direct outcomes and benefits of project collaboration with our partners, our interdisciplinary environments prepare our students for acting in challenging positions in business and society”.

This human development goal can easily be seen in the Mind Tech Laboratory's work. Drawing on research from several fields, a project focused on children's reading problems resulted in an Internet-based learning game, called *Ekapeli* (Graphogame, in English), that helps young readers identify associations between letter symbols and sounds through multiple-choice questions and continually challenging

progression. After helping 30,000 Finnish children to read, the Graphogame unit, comprising doctoral and post-doctoral level researchers from various countries, is now pursuing equivalent programmes in English, German, and Dutch.

The multifold learning potential of digital games finds outcomes in the Agora Game Lab as well. Rather than approaching users as the focus of study, the Game Lab views their subjects, the future game players, as collaborators in game design and research. Their philosophy is that the users themselves are the most informed about what is appealing, useful, and usable in programmes designed for them. The research team regularly consults and collaborates with the actively involved users—from children and their teachers to senior citizens. An example of the outcome of this approach is the *Suoseikkailu* game (Swamp Adventure, in English), one part of a larger informational environment that familiarises learners with the natural science phenomena related to the origin and development of peatlands in Finland.

“To create something new is the main task of a modern university”, says Mr. Neittaanmäki. “With this in mind, and despite no examples to follow, we established the Agora Center as a proactive forerunner, fulfilling our visions of the importance of multifaceted collaboration and human technologies research. Our success story reflects what society expects from research”. ★

At a glance

The Agora Center is an internationally recognised and networked research institute focused on networked interdisciplinary and innovative research on human technology and the knowledge society.

The Center draws together high quality research from a wide range of scientific disciplines with the practical know-how embodied in its diverse partner network. The goal of the Center is to develop the future knowledge society from a human-centric perspective.

An innovative and collaborative research environment supports the flow of intellectual capital and real-life experience within and among the many academic disciplines, fostering creativity and flexible problem solving. Multiple research groups at the Agora Center explore the knowledge and skills needed for continued development of contemporary and future societies.

www.jyu.fi/erillis/agoracenter/en

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