Applied Health Technology – a New Research Discipline at Blekinge Institute of Technology

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Abstract

Since spring 2008 is Applied Health Technology a new research discipline at Blekinge Institute of Technology. The discipline has been developed in collaboration between the School of Health Science and the School of Technology. In the general syllabus for third-cycle (doctoral research) studies in Applied Health Technology underlines the value of multidisciplinary as well as interdisciplinary research, focusing on how Caring and Nursing Sciences, Public Health Science and Clinical Medical Science, can be linked to research areas in technology. The formation of research teams and third-cycle programs are in progress. Applied Health Technology corresponds to increasing national and international stated societal needs of technology development in health promotion and prevention efforts as well as in health care and social services.

Key words: inter-discipline collaboration, third-cycle-studies, doctoral studies, health technology

1. Introduction

For both society and health services there are huge challenges to meet future needs of new technologies in a more complex context for promoting health, preventing diseases, taking care of people with illness and elderly and medical treatments. This paper is a presentation of a new research discipline “Applied Health Technology” at Blekinge Institute of Technology in Sweden evolved in a inter-discipline collaboration between researchers in technology and health science in purpose to shape a supportive scientific environment for research and development in a more complex ICT (Information- and communication technology) depending society and health care.

2. Background
Ten years ago Blekinge International School of Health with most programs in nursing, public health and clinical medicine was merged with the University College of Karlskrona/Ronneby with most programs in Engineering and a few in Mathematic, Management, Human- and Social Sciences, to one University college; Blekinge Institute of Technology (BTH). With this merge there were two opposite changing processes on going on the same time at BTH; a development process aiming to achieve a strong technologic IT-profile and an expanding process which increasing number of non technical education and research disciplines. These parallel processes were a challenge for the framework of research strategies at BTH as well as for the employed researchers and lecturers. In BTH’s previous research strategy 2005-2008 was the demands on new thinking and cross border collaboration between different disciplines reinforced. The demands included health sciences in order to get a stronger connection to the BTH Applied IT profile and to meet the increasing needs of technological support in society and health services.

Today is BTH one of the most distinctly profiled institutes in Sweden, with a clear focus on Applied IT and Sustainable Development of Industry and Society. BTH is also a broad-based institute of technology with business administration, social sciences, the humanities and health sciences influenced by the Applied IT profile. In this way the research is ranging from engineering and mathematics to spatial planning, the humanities, business administration and health sciences. These development and expanding processes to a broad institute with a Applied Technology profile also gave opportunities for fruitful meetings and collaborations between researchers in different disciplines and gave prerequisites for research and education interaction between technology and other disciplines. From this challenge was the new research discipline “Applied Health Technology” evolved.

3. Development of the new research discipline

Since spring 2008 is Applied Health Technology a research discipline at Blekinge Institute of Technology. The discipline is developed in collaboration between the School of Health Science and the School of Technology. At BTH there was research ongoing in the border between technology and health, but this was mainly driven from a technical point of departure with health services as the context. A challenge in the development of Applied Health Technology was and still is, to make the values, foundations and cornerstones in nursing sciences, public health and clinical medicine obvious and apparent in a synthesis of health and technology.

In an early stage of the development, we did a comprehensive investigation of initiatives and research fields in the interface between health and technology, and analysis of the concepts used at universities in Europe. Only in Scandinavia a number of researches were found in the border of health and technology; for example Telemedicine at Tromsø University, Norway, Health informatics at Ålborg university in Denmark, E-health at Kalmar university, Sweden, Health care and technology at Kupio university in Finland. The analysis did not give a distinct view of the
research fields or a uniform meaning in the used concepts. From this analysis in addition to several discussions was the concept “Applied Health Technology” considered.

4. Research education in Applied Health Technology

The research discipline Applied Health Technology has a interdisciplinry approach and includes studies of how health from the perspective of an individual and/or of a population, directly and indirectly can be related to applications and consequences of technology. At Blekinge Institute of Technology, the discipline has a specific focus on how the disciplines of Caring Science, Public Health Sciences and Clinical Medicine can be combined with Technical Science aiming to support a good life. This could for example concern leadership issues and development processes for attaining health strategic goals, or it could be about how technology can support and enhance health care but also health literacy and health. It could also concern studies of how individuals experience living with the aid of technology. In research in this discipline, the human context is emphasized in the light of the possibilities and limitations of technology to enhance and maintain health and alleviate suffering.

In the general syllabus for third-cycle studies in Applied Health Technology underlines the value of interdisciplinry as well as multidisciplinary research, focusing on how Caring and Nursing Sciences, Public Health Science and Clinical Medical Science, can be linked to research areas in technology. Focus is on human context in relation to technical opportunities and limits to facilitate and maintain well being and health, and relieve suffering. The integration of these disciplines could open up for more inclusive designs in research and development health technology projects.

The requirements for application to third-cycle studies in Applied Health Technology are an academic examine on advanced level i.e. master degree in relevant scientific discipline. In this way the doctoral student can have different academic backgrounds which most probably could give fruitful meetings between health sciences, humanities, social sciences and technology – facilitating a wider and contextual research learning process. The formation of research teams and third-cycle (doctoral) programs are in progress. A main principle is that the doctoral students’ accomplish their research studies in teams with research competences in technology as well as in nursing, public health or clinical medicine.

Already today some research projects have their resident in Applied Health Technology. Two of these projects focus on development of “Health channels for digital interactive health services”. One with studies of the interaction between primary health care staff and inhabitants, along with how the channel can make health care more accessible. One with studies of the development process and how community participation affects the developed digital health promoting channel user friendliness and accessibility. Other projects focus on “Elderly – activity and digital games”
and “Life quality among elderly according to ICT and development of e-learning programs for elderly”.

Considering that Applied Health Technology was a new inter-discipline it was urgent to start the third cycle program with a course that support a multi-faceted, inter- and multi-disciplinary dialogue about what the new discipline Applied Health Technology includes and encompasses. The first offered course *Perspectives on Applied Health Technology* started in April 2009. The course consists of a series of open-seminars with dialogues on aspects and challenges in Applied Health Technology between researchers from involved research subject areas. In accordance with the interdisciplinary approach, the coming compulsory courses focus on research design in Applied Health Technology and on values, statements and ethical aspects according to the research field in a health promotion and health care context.

Parallel with the development of Applied Health Technology, there is also a twofold development of supporting environments for the research in the new discipline. One is a research-lab labeled “the Health Studio”, aiming to be a meeting place for reflexive dialogues, investigations, modeling and experiments. The other supportive environment is a working process model supporting participation and cooperation with organizations and communities as well as individual professionals and inhabitants. The model will also be a quality assurance tool.

### 5. Further development

We think the new research field Applied Health Technology at BTH correspond well to national and international stated societal needs of technology development in health promotion and prevention efforts as well as in health care and social services. Inter- and multi scientific meetings, research and development processes seem to be a necessity. Taking advantages of the unique of health sciences and of technology, and establishment of common values for Applied Health Technology, could most probably make a proper foundation for such inter- and multi-disciplinary processes.

Now, we look forward to the IRIS-conference and the opportunity to learn and share the experiences from established research disciplines in the field of “health and technology”, and to compare research issues and content in third-cycle (doctoral) programmes. We also search for contact with universities, laboratories and centres for research and research education collaboration.