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The Digital Life Centre: a Living Lab for Education in Real World Situations

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Abstract: This paper presents two projects in the field of care and technology in which students are trained in real environments.

Introduction
ICT is entering our daily life with a tremendous speed. Look at new multimedia communication and entertainment, home intelligence, digital care and mobile information systems. Our life is getting ‘digital’, and many business opportunities show up.
Research institutes and laboratories of large companies develop a great deal of knowledge in this domain. Unfortunately much of this knowledge is not used in novel innovations in companies, especially small and medium size companies miss good contacts with large research institutes.
At the Institute for Information Engineering in Almere, part of the Professional University of Amsterdam, the educational concept is focused on ‘learning in practice’. Students spend 60\% of their time in companies and 40\% of their time in school. Twice a year the students start a new project in which the company defines the end products; the student finds its educational path and the institute guards the level of the educations. Such a project is called a ‘Comakership’.
Recently we started the ‘Digital Life Centre’ in which we carry out research projects in the field of Digital Life and Domotics. We have two main lines: entertainment and media, and care. In this paper we briefly illustrate two care projects.

Skillslab
The Skillslab project was set up to come to a better cooperation between the care institutes (the professionals working in the care institutes as well as the
end users/patients), the different institutes for vocational and higher vocational education (nursing, technology and ICT), and the technology companies involved in home automation.

A ‘physical’ lab was planned in Amsterdam-West within one of the larger care centers. The aim of the lab was

- To develop and implement domotics systems for care in joint collaboration between companies, care institutes and students from different education
- To test these systems with the end user/patient
- To develop systems for practical exercises for students from care educations

Although we started with a setup within the care institute (a home for elderly persons), it appeared to be very difficult to get students (especially lower level vocational training nursing and technology) to spend independently doing research within the care institute. Therefore we decided to make systems for practical training within the educational institutes. In collaboration with ‘Smart Homes’, a knowledge centre for domotics special ‘building block systems’ were made for the vocational schools (see Fig. 1).

Figure 1. Left: example of building block system for training with ‘domotics systems’. Right: Students nursing and ICT at the kick off of the joint program.

Apart from setting up a physical lab, we also started educational programs to bridge the gap between technology and nursing students. In the context of the minor Digital Life (a minor is a 30 ect program of courses at the Professional University Amsterdam) we defined 5 collaboration projects where students from ICT collaborated with students from occupational
therapy or nursing. One of those projects (‘Paladijn’) will be discussed in the next section.

The students worked for 20 weeks on projects involving ICT in care applications, such as a sensor network for monitoring elderly with beginning dementia, video communication with a care centre, or a wayfinding system for elderly. The collaboration was very good for most of the groups. All projects were application driven: all of the research questions came from companies or care institutes. In the evaluation students indicated that they learned a lot about the other field.

Paladijn

Paladijn is an apartment building where 12-19 young adults with a cognitive handicap live under limited supervision. A project group of students and an advice company studied the safety in the building. For the caregivers it is not always possible to see who are in the building, where somebody is located, whether there are visitors and whether the visitors were invited or uninvited. The study was divided into two parts: a technical study and a user study. The first was focused on existing technology for observation system and was mainly carried out by the ICT students. The user study was carried out by the students occupational therapy. They specifically focused on the limitations and possibilities of the inhabitants, and which ICT applications can be used by them. The study was finalized with an advice report.

Conclusions

In our experience, short applied research projects in which students participate and take place in companies or institutions are a very efficient way for knowledge transfer. The ‘comakership’ format as used in the Digital Life Centre of the Institute for Information Engineering in Almere is a perfect implementation of such novel educational methodologies. Multidisciplinary teams are a prerequisite for running complex projects as care and ICT, and have to be formed during education.

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