

The CareRabbit

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ABSTRACT

The CareRabbit (ZorgKonijn) is an e-health device that can be used to play messages (e.g. text, MP3) sent through the Internet. It is used in children's departments in hospitals. Its aim is to make children feel comfortable and make their stay more pleasant.

Motivation – Our goal is to investigate the added value of the CareRabbit for children and other stakeholders (e.g. relatives of the child, hospitals, insurance companies) and give advice on how to further develop and implement the CareRabbit (e.g. functionalities, support, organization and distribution).

Research approach – During the study, we will conduct a pilot study in five hospital paediatrics departments. We will administer questionnaires about quality of life to admitted children and their parents with a CareRabbit and a control group without a CareRabbit ($N = 200$). Also, we will develop a business case to gain insight in the organization and funding of the CareRabbit. This business case will be based on a practice oriented design research with literature research, interviews, and the STOF-model.

Findings/Design – The research is currently in its first phase and this paper presents preliminary results. Our experiences are that the stakeholders are enthusiastic. Moreover, children with the CareRabbit feel more at ease and connected to home and experience their hospital stay as more pleasant. In turn, this could lead to shorter hospital stays.

Research limitations/Implications – The average stay of children in a hospital in the Netherlands is four to five days. Therefore two different groups are compared, instead of measuring the effect of the CareRabbit per child. Because the pilots will only last two to three months, long-term results cannot be elicited from the research findings.

Keywords

Healthcare, social robotics, self-care, connectedness, children, hospitals, Nabaztag

INTRODUCTION

The CareRabbit is a 23 cm high white rabbit with rotating ears, lights in his belly and a wireless Internet connection. The CareRabbit plays messages, music and

stories that others send through the Internet. The original device is based on Nabaztag made by the French company Violet. IBM created a dedicated server and website for the CareRabbit for use in hospitals. The CareRabbit is used in children's departments: parents, family and friends can send messages to the child in the hospital through the website.



RESEARCH

Motivation

Previous studies show that social connectedness is important for a person's perceived well-being and health or disease. In a research on connectedness, social well-being and communication mode, Sadlo (2005) states that "*the experience of social connectedness makes a more important contribution to an individual's subjective well-being, than the mode of communication*". This implies that communication through for instance the Internet might have the same effect as face-to-face communication. Especially family members and friends can give people a feeling of belonging, understanding and being cared for. Having a social network that supports an individual, can help ward off stress, develop social skills (Cohen, Sherrod, and Clark, 1986), and leads to higher levels of life satisfaction and self-esteem (Takahaski, Tamura, and Tokoro, 1997).

The purpose of the CareRabbit is to make children feel more comfortable in hospitals and make the hospitalization period more pleasant. The goal of our research is to gain insight into the factors that contribute to successful development and implementation of an e-health innovation, such as the CareRabbit, and to develop a business case. The latter is achieved by analyzing the organizational layout,

financial structure, technological opportunities and the value for customers and the network of the CareRabbit.

Research Approach

The research consists of two phases. In the first phase, we will conduct pilots in five hospital paediatric departments. On the last day before discharge, quality of life is measured in 50 children who use the CareRabbit and in 50 control children (no CareRabbit). Quality of life is measured with the KIND-L questionnaire, a validated list consisting of 30 questions (Raaijmakers et al., 2002).

In the second phase, a practice oriented design research is used to construct the business case. It will give IBM guidance on how to further develop the CareRabbit in regard to for example functionalities and financing. For this the STOF model is used, which contains five domains: Service, Technology, Organization, Finance and External factors (Haaker et al., 2004).

Findings

The research has started in February 2010. This paper presents preliminary results. The first findings are that the children and all the stakeholders (e.g. pedagogic workers, nurses, health insurers) are enthusiastic about the CareRabbit.

The stakeholders think the CareRabbit is a sympathetic idea and the nurses and pedagogic workers find it a valuable addition to the existing facilities for children. The CareRabbits are not in use at the moment, but the people who are trained to work with them, enjoy sending and receiving messages themselves.

The responses on a Health IT fair for health care professionals, where the CareRabbit was presented, were solely positive, and many suggestions for other functionalities and user groups were given.

The expected results of the pilot phase are that the children will find the CareRabbit a positive contribution to their stay at the hospital: that it will make them feel more connected to home, more at ease and make the experience of staying in a hospital less unpleasant. In the best case it might help them recover faster.

Research Limitations

The average length of stay for children in Dutch hospitals is four to five days. Therefore we have to compare the results of two different groups (one group with and one group without the CareRabbit), instead of comparing the quality of life of the same child with and without the CareRabbit. Unfortunately, it was not possible to choose the ideal design for this pilot study, a randomised controlled trial. Therefore it cannot be

excluded that differences in background characteristics or external factors may be responsible for differences in quality of life between groups.

It is also difficult to estimate the effects on the long term: the pilots were held for three months in each hospital, after this period the novelty and interest in the CareRabbit might decrease and the effect might lessen.

Value

The research findings can help achieving the hospitals' goal to provide more personalized care. Also, the focus on children and connectedness, rather than just on the care process itself, is innovative.

An advantage is that this device already exists and is easy to produce, whereas other research needs to develop new and complex robots. Also, the website, which facilitates sending messages, is developed specifically for hospitals. As a result, the CareRabbit can be quickly, easily and securely implemented.

Background of the Author

Sanne Blom is a student Industrial Engineering and Management (master in Health Care Technology and Management) at the University of Twente in Enschede. The CareRabbit business case is her graduation project for IBM and Zenc Research & Consultancy. She expects to graduate in November 2010.

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