

Chapter 18

Designing Remote Connectedness between Parents and their Premature Newly Born: A Design Proposal

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ABSTRACT

During a 6 month graduation project a design concept is proposed and developed that is expected to support the parent-child bonding while parents are at home and their child is in the NICU. In collaboration with medical practitioners from the Maxima Medical Centere Veldhoven (MMC) the new system for remote bonding was developed through a multi-iterative design process. The proposed system is designed to enable parents to detect their baby's need for consoling and to interact with the baby, comforting the child on a physical remote basis. A working proof of principle prototype is build and evaluated with 15 parents of incubator children through a focus group. The goal of the focus group was to evaluate key aspects of the proposed design concept like the need for such a system and the interaction quality with the different products. Although the design has reached a working proof of principle status, more research and development is needed before the system can be tested in the hospital together with babies. Topics to address in the future are the child's safety and interaction of parents with the system.

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INTRODUCTION

When an infant is born before a gestational period of 37 weeks it is called a premature neonate. Below 32 weeks of gestation the vital organs of the neonate are still underdeveloped, making it vital for the child to be kept in an incubator at a NICU. Because the child is still fragile it is kept under constant surveillance and monitoring, where stress and stimuli other than expected in the womb should be kept to a minimum.

Besides the child, the parents to go through a difficult and stressful period. Because of the prematurity of the child birth, the mental preparation of the parents is disrupted and replaced with stress, fear and uncertainty (Davis, Edwards, Mohay, & Wollin, 2003). Also feelings of sorrow and loss for not completing the pregnancy or having a healthy child make the experience emotionally challenging (Davis et al., 2003).

This chapter will describe a design proposal consisting of a system of products that potentially supports the process parents and child go through during the first weeks after premature birth. This hands-on experience of the integration between design and health care has a main goal to open up the view of conventional medical devices towards more intuitive and interactive systems that reach beyond the hospital's walls. Where by doing so allowing relatives closer connection to the hospitalized patient(s).

BACKGROUND

The Effect on Parents

Research shows that having a premature born infant has a great impact on parents.

Mothers cope with higher levels of stress and possibility of depression and the feeling of guilt for not being able to deliver a healthy baby (Davis et al., 2003). Usually being in the hospital themselves during the immediate period after

child birth, mothers feel disconnected, helpless and want to provide care to the baby in any way possible (Davis et al., 2003).

Fathers on the other hand cope with the mental problems of not being able to provide care to both mother and child at the same time, through the sense of loss in control and being powerless to act (Lindberg, Axelsson, & Ohrling, 2007). They struggle between the choice of being with the child or their spouse (Lindberg et al., 2007) and they express the feeling of not being taken care of themselves because there is nobody to talk to who understands their situation (Lindberg et al., 2007).

Furthermore parents describe the period after premature childbirth of being full of uncertainty and lack of knowledge, and most parents also feel as if they have a "loan baby" or if they are visiting a baby that "belongs to the hospital" (Davis et al., 2003). This feeling of disconnectedness creates an even bigger distance between the parents and their child, making the postnatal period even more difficult.

There are several different reasons why parents have this sense of disconnectedness. First of all there is the fact that the infant is in the hospital. In case of a full term infant the child and the mother stay in the hospital for a maximum of about 1 or 2 days. In case of premature birth the hospitalization of the infant can last for months. Second, parents are scared to hold or even touch their baby. They are afraid they can infect the already fragile infant or hurt the child unwillingly. Finally the environment contributes greatly to the sense of discomfort in the hospital, all the medical equipment around and on the child makes it difficult for parents to approach the child in a natural and comfortable way.

Connectedness

In order to get a grasp on the subject of the relation between baby and parents a look into previous research was presented. The findings in the

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