

Chapter 12

Case Study of ASCIT: Fostering Communication through Interactive Technologies for Long Term Sick Children

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ABSTRACT

In the ASCIT project, several elements of Multi-user Virtual Environments were integrated into a demonstrator enabling long term sick children to communicate efficiently with their regular school and classroom learning environment. By presenting them with an attractive and game-like interface, combined with state-of-the-art audio and video communication means, the children were encouraged to spend time using the system and to keep up with the day-to-day classroom activities. The authors will describe in detail the three interacting parts in the development cycle. Starting off with the analysis section, the authors describe how the requirements for the system were gathered. In the section on the technical development, they present an overview of the various technical challenges posed by the usage scenario, including real-time transmission of several high quality audio/video streams. Finally, user evaluation was performed on the demonstrator to determine to what extent the system efficiently addressed the identified concerns in the analysis stage.

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INTRODUCTION

During the last decades, health-care has moved from a hospital-based to a rather ambulant treatment because hospitalization periods are shortened and treatments are often carried out at home. If children are involved, this evolution also affects their education. The responsibility for education shifts from the hospital to the school which the child attended before school absence. Empirical exploration, however, reveals that regular schools in Flanders (the Dutch speaking part of Belgium) are hardly able to set up high quality instruction for these home-based pupils. The assumption of the present paper is that information and communication technologies (ICT) may contribute to a high quality school experience of children that are absent from school due to medical reasons. Although earlier attempts to use ICT for that purpose (e.g., PEBBLES (Pebbles)) exist, they often fail to illustrate the entire process design, implementation and evaluation of the technologies used. This initiative is intended to fill this gap by exploring the systematic design of an ICT-tool in Flanders.

Conceptualization of Children with a Long-Term or Chronic Illness

To date, several terms are used to define the population of children with health conditions. Unfortunately, no consensus has been reached with regard to the definition of children with chronic diseases (Thies, 1999). Earlier definitions not only focus on duration or type of illness: Ramler & Rice (1997), for example, describe which impact an illness has to have on a child's life to be categorized as a 'chronic medical condition'. In line with the definition of Ramler & Rice (1997), in the present study the impact of the medical condition was conceptualized as the impact on the child's school attendance, which affects both social contacts with peers and academic achievement. We define children with a chronic or long-term illness as children being absent from school for at

least 21 continuous days or missing at least half of the class-based instruction due to their medical condition. In the present study children aged six to fifteen years old were taken into account.

Systemic Approach of Children with a Long-Term or Chronic Illness

In this study domain, there has only recently been a shift from a single-actor approach involving proxy-measures towards a child-centered approach involving the sick children themselves (Borgers et al., 2000; Mukherjee et al., 2000). In the present study, a child-centered approach is chosen by adopting an ecological conceptualization of children suffering a long-term or chronic disease. In line with Shields & Heron (1995), a systemic approach based on the notion of 'shared membership' is used to identify the key actors within the environment of a sick child. At school, the first ecosystem, each child is a 'pupil' and so are the other children, while the same child is a 'family member' at home. School and family are predominant ecosystems in each child's life, whether they are healthy or sick. However, a third ecosystem is added to the life of children with a long-term or chronic health condition: the hospital or the health-care environment in which the child becomes a 'patient'. As Shields & Heron (1995) argue that all ecosystems influence each other, it is assumed that the central actors of these three ecosystems, which are teachers and classmates, parents and health-care personnel, influence a sick child's experiences. Hence, this study adopts a multiple actor approach by taking into account the viewpoints of the different actors and those of sick children themselves, to fill the gap in earlier research.

The Importance of the Classroom Experience

The positive attitude towards school of most children with a long-term or chronic illness is related

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