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Network Technology and Homebound Inclusive Education



Education in a Competitive and Globalizing World

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PREFACE

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There are students who, because of a wide range of impediments (disability, long-term illness, temporary or permanent home care, particular syndromes such as ‘multiple chemical sensitivity’) are confined to their homes or other physical environments (hospitals, provisional homes, etc.) and consequently find difficulty in regularly attending education and training programs.

While national laws on the right to education do protect such situations, the in-presence support offered to students and families is actually not always adequate for real, effective socio-educational inclusion. This is why great hopes are now being placed in the opportunities offered by the new network and mobile technologies (NMTs), given their massive personal and home diffusion. NMTs have already shown themselves to be invaluable in favoring both the individual and collaborative online learning of homebound students, and the distance support of study activities by teachers.

The aim of this book is to reach beyond the strictly pedagogical aspects linked to NMT educational use, analyzing how these technologies are able to potentiate educational inclusion processes for homebound students by focusing on and amplifying the online social interaction of all those who are directly and indirectly involved in the specific problem (i.e. students, educators, families, clinics, associations, local authorities, etc.).

By gathering together important contributions from leading international experts in the field, the book tackles the theme of inclusive education from 4 different, though closely complementary, viewpoints: (1) the homebound student; (2) the educators; (3) the network of social relations at whose intersection disadvantaged students find themselves; (4) the technologies which will most effectively advance the specific process of homebound inclusive education.

The book is divided into three parts. The first part (Chapters 1-5) introduces the context and also suggests conceptual frameworks both for homebound students’ special instruction and for the training of teachers involved in hospital and home education. In the second part (Chapters 6-9), three specific projects which support socio-educational inclusion of students with serious illnesses are presented. The last 2 chapters (Chapters 10-11), describe a series of experiences and good practices in the use of NMTs to support the learning processes of hospitalized and/or homebound children.

Chapter 1 - The chapter discusses the correlation between disease and consequent school adjustment. As medical technology advances, the quality of life of the medically fragile population will improve and have a direct impact on future educational and social needs. Educators must be prepared to address this situation. The availability of technology tools can ease the academic and social impact of homebound and in-home instruction. Technology can be effectively integrated into instructional procedures to enhance student learning, improve

pedagogy and social interaction with peers, and alleviate difficult transitions from homebound or in-home instruction to school re-entry.

Chapter 2 – The chapter begins with the following consideration: if homebound education is reconceptualized as distance education, it becomes clear that the current system is similar to the correspondence course model and the technology utilized to deliver instruction is clearly outmoded. With current network and mobile technologies, solutions to the instructional problems are plentiful. Many current technologies can be used to provide appropriate instruction to homebound secondary school students. However, solutions to the problem of providing appropriate and meaningful instruction to homebound students are still backward.

Solutions are best accomplished by first considering teachers' instructional and social goals. Once these are determined, decisions about the most appropriate technologies for maximizing learning opportunities can be taken. A conceptual framework was constructed to help instructors avoid making the mistake of allowing technology to dictate instruction. The framework presented in this chapter distinguishes between reactive, proactive, and transactive designs related to the learner's control over both academic and social interactions. The classifications are additive in nature, i.e. a transactive resolution includes all the functionalities of reactive and proactive resolutions.

Chapter 3 – When speaking about children with chronic health conditions one must necessarily tackle the problem of the many physiological and psychosocial challenges presented by their illness. Enduring a chronic disease and its treatment can cause much disruption to children's schooling, and also to their family's social life and relationships. Advances in social computing, combined with an increasingly proficient 'digital' youth population, have led many researchers to look for technological solutions to some of these issues. In particular, the use of online communities to address anxiety and promote overall well-being and social connectedness in this cohort of chronically ill children has been the object of research for a wide range of disciplines, including medicine, computer science, education, psychology and social science. The design of interventions within a constrained environment such as a hospital setting offers many challenges. This chapter will explore a number of these key issues in the context of online communities and discuss the sociotechnical implications of implementing such interventions.

Chapter 4 –How widespread is the educational use of the new technologies in home education? This is the question which a national survey carried out in Italy by the National Research Council tried to answer. The survey had a double function:

- to support research as an aid to understanding: a) how inclusive educational processes can be generated with the help of technologies, allowing the homebound student to participate in an active and discriminating way; b) what causes hinder or restrict the use of said technologies;
- to add to the documentation of educational experiences to be shared by teachers and researchers involved in homebound school education.

Analysis of these results shows that technologies are being used in ways which are not wholly suitable for dealing with problematic situations. The survey highlighted the fact that to overcome these problems it is necessary to act on two complementary levels: first by propagating knowledge and good practices on the educational use of NMTs; secondly by promoting teacher training on this specific theme.

Chapter 5 –The information collected in the survey described in the previous chapter leads to the conclusion that individual experiences deriving from sometimes “extreme” didactic needs, such as those of students who are unable to attend normal education regularly (if at all), has provided and continues to provide school and research worlds with useful specific material for reflection and for the experimentation of new forms of teaching.

An example may be found in hospital and/or home teaching, that is to say an “open” type of teaching which ignores the usual physical perimeter of the class (understood as an aggregation of individuals with the respective roles of students and teachers), while guaranteeing the same social and communicative dimension which must be allowed to develop within a class.

Paradoxically, these situations have shown themselves to be ideal for the development of a teaching style which is aimed at stimulating the active role of the student, and at fostering a learning process based more on doing than on listening, hence in line with so-called “2.0 pedagogy”. And, as will be argued in this chapter, it is in this sense that special pedagogy can and must be considered as a potential crucible for “2.0 teachers”. But how can the transition from “potential” to “actual” crucible be effected?

In answering this question, the chapter begins with some considerations on the current relationship between technology and pedagogy, then attempts to understand if and how it is possible to capitalize on the numerous individual experiences of hospital and home teachers, in order to achieve a didactic innovation which is supported by the new technologies and which can be extended to the whole school system.

After a wide-reaching overview of the problems connected to homebound school education, the book continues by presenting some national and international projects connected with the use of NMTs for supporting socio-educational inclusion.

Chapter 6 – The project described in this chapter is of Belgian origin. Empirical exploration reveals that regular schools in Flanders (the Dutch-speaking part of Belgium) are inexpert in setting up high-quality instruction for home-based pupils. Most efforts focus on the child’s re-entry into the community and school after being hospitalized, rather than on pre-empting this process by bringing the community and school to him.

The assumption of the chapter is that information and communication technologies (ICT) may contribute to a high-quality school experience for children that are absent from school for medical reasons. The envisaged system is based on concrete user needs, and is therefore assumed to be educationally sound and relevant. It is furthermore more scalable and affordable than previous ICT-based tools for this user group.

In particular, the ASCIT project aims to re-establish the communication link between sick pupils and their regular classrooms with the aim of improving instruction and social contacts before the moment of school re-entry. Several elements of Multi-user Virtual Environments are combined into an integrated solution that enables long-term sick children to communicate efficiently with their regular school and classroom learning environments. By presenting them with an attractive, game-like interface, combined with state-of-the-art audio and video communication tools, the children are encouraged to spend time using the system and to keep up with day-to-day classroom activities.

Chapter 7 –The aim of this chapter is to describe an Italian research project which targeted all homebound subjects, not only school-age ones. In fact, problems due to physical or health disabilities which are either congenital or have been acquired through traumas or degenerative diseases often hinder normal participation in school, university or professional education and training, either temporarily or permanently.

Can network and mobile technologies offer new opportunities for proper social/educational inclusion in these cases? This is the key question which from 2009 to 2012 guided the research and development of the Italian strategic project known as WISE (Wiring Individualized Special Education). The project was funded by the Ministry of Education, University and Research (MIUR) with the funds for investment in basic research.

The main aim of the project was to develop a support system for homebound special education. Essential parts of the WISE support system are: tools for sharing the knowledge and good practices of HBSE; the assisted planning of educational interventions directed at a special user base; the training of social/educational workers.

The project was developed through the combined action of six Research Units, coordinated by the Institute for Educational Technology (ITD) of the Italian National Research Council (CNR), and belonging to six university centers of excellence specialized in research on the educational use of network technologies.

This chapter presents the main features of the project, together with the results deriving from it in terms of research and prototype development.

Chapter 8 – The European project presented in this chapter is based on the assumption that an inclusive school requires attention to diversity. According to this the teaching hospital should try to improve the quality of life of hospitalized children through normalization of their lives. In this sense, ensuring the collaboration and coordination among hospitals, schools, families and the professionals involved with the hospitalized minor is extremely important. The chapter presents a diagnostic study of ICT as a tool for coordinating the various participants in hospital and home care education and their main needs. This project was developed under the SAVEH European scheme. For the pilot experiment, a sample of 10 children ranging in age from 7 to 16 years was selected, so the project covered different educational levels. Moreover, a package of technological solutions for providing inclusive education for children in hospitalized and homecare situations was designed and developed.

Chapter 9 –The fourth project presented in this book was developed in Australia and highlights the problems connected with the way teachers approach the educational use of online technologies. “Link ‘n Learn” was a research project aimed at including hospitalized students in education by connecting them to their teachers via various types of network technology. It was a collaborative research project between the Education Institute at the Royal Children’s Hospital and the Graduate School of Education at the University of Melbourne, and was funded by the Australian Research Council.

Link ‘n Learn showed that it is feasible for students absent from school to use network technology hardware and software to continue their education. However, if the participants are typical of classroom teachers today, these teachers lack some of the basic knowledge and skills necessary for moving into teaching through web conferencing. In the case studies presented in the chapter, as with almost all Link ‘n Learn participants, the problems are

compounded because the teachers attempt to teach a class in face-to-face mode and at the same time use web conferencing to enable an absent student to be connected to the lesson.

The third and last section of the book presents some experiences and good practices in the use of NMTs to support the learning processes of hospitalized and/or homebound children.

Chapter 10 – The chapter describes a pilot study carried out in southern Louisiana, involving several home-bound students. The students were connected to their schools using Skype technology. Skype is rapidly becoming a distance education tool. It has certain advantages: people can communicate and see each other in real time, it is free (except for video conferencing), and the equipment for Skype communication is highly affordable.

The main finding is that Skype technology can be effective in providing home-bound students with an almost “being there” opportunity to be involved in the classroom learning environment; however, motivation is the strongest factor of the effectiveness.

Chapter 11 - The chapter presents two experiences of homebound school education, managed in an action research context. The two case studies led to the development of an inclusive educational approach for homebound students, mediated by an ICT use which was co-built and shared daily by all the actors of the educational process (teachers, classmates, researchers, parents, friends). The chapter highlights and discusses how the use of technologies needs to be integrated with a reference pedagogical model in which the added value lies in the skillful combination of technology, analysis, and understanding of students’ needs and the particular social context.

We wish to thank all the authors who have contributed with their precious scientific knowledge and experience to the writing of this book, which is addressed to all those who, like us, wish to constantly increase their understanding of the best educational use of network and mobile technology in homebound inclusive education.

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