Enabling Hospitalised Students to Continue Their Schooling: Crossing Classroom Boundaries
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Abstract
Every day across the world thousands of students are absent from their school classes because of a health condition. This paper presents some findings from a study conducted in one Australian hospital over three years with students who missed significant amounts of school time. The participating students completed a survey of their current use of digital technologies for communication, and were interviewed during their hospitalisation. Data was also collected from some teachers and from the Education Support Staff at the hospital. Findings from the study clearly indicate a strong desire on the part of students to continue their education through ongoing contact with schools, teachers and classmates. While these students were eager to establish contact, this was not always easy or possible for teachers. This research project has demonstrated a need for educational administrators, at both system and school levels, to provide assistance in the form of time and technology to enable these hospitalised students to continue their education. It is anticipated that the project will produce recommendations concerning appropriate techniques and strategies to enable effective electronic learning to occur for this group of young people. The recommendations should assist classroom teachers, school administrators, and education systems in both preparing and implementing effective and continuing electronic learning for educationally disadvantaged young people.

Key Words
Hospitalized students, communications technologies
1. INTRODUCTION

Helping hospitalised students with school work is not a new concept. Throughout the world many health systems and individual hospitals have developed schemes for allowing patients to study while in hospital. In the past decade there have been major changes in two areas. First and most important, students at all levels have become considerably more technologically savvy. While there is no proof that young people are dependent on technology, there is ample evidence (for example Becta, 2008) that teen-agers and adolescents are high-end users of various forms of mobile communications technology. The second recent change of note relates to the increased availability of digital communications technologies in student’s schools and homes. Internet access through computers or mobile phones is now ubiquitous in Australia.

In excess of ten thousand young people aged from 6 to 18 years attend the Royal Melbourne Hospital (RCH) every year with some form of health condition. The Education Institute at the RCH has a stated aim to ensure “that children and young people continue to engage in learning and remain connected to their school community throughout their health journey” (Education Institute, 2011). The research reported in this paper arises from an ongoing collaboration between the Education Institute at the RCH and the Graduate School of Education at the University of Melbourne, and largely funded by an Australian Research Council Linkage grant.

A report by the Commonwealth Department of Education, Science and Training (DEST, 2007) noted the capacity of ICT to improve learning and teaching through assisting teachers in the complex task of more effectively engaging students in the processes of learning. There are also many reports of wide-spread use of on-line web-based virtual classrooms. Over the past decade this type of technology has been utilised by the Education Institute to connect students to their school’s teachers, curriculum and peer group.

Campbell and St Leger (2006) evaluated the services offered by the Education Institute, and reported on feedback from the major stakeholders: the home, the school and the hospital. One part of the report noted that “the use of information and communications technologies to maintain real time contact with students with chronic health conditions seems, at this stage, to be under-utilised by schools”. The purpose of the research reported in this paper was to make effective use of a range of digital communications technologies to enhance the educational connections between students with chronic health conditions and their schools and teachers.

It is necessary to briefly define three terms that are used throughout this paper. “Link ‘n Learn” is the working name of an ARC funded project that was conducted at Melbourne’s Royal Children’s Hospital by researchers from the Graduate School of Education and members of the Education Support Team at the Education Institute. The term “young people” is used when referring to children and adolescents who are enrolled at a school. Young people who have been part of Link ‘n Learn have come from both primary and secondary schools, ranging from Grade 5 to Year 12.
These young people have been diagnosed with a “chronic illness”, “…an illness that is permanent or lasts a long time. It may get slowly worse over time. It may lead to death, or it may finally go away. It may cause permanent changes to the body. It will certainly affect the person's quality of life” (The Chronic Illness Alliance, nd).

2. BACKGROUND TO THE STUDY

Link 'n Learn is a collaborative research project between the Education Institute at the RCH and the Graduate School of Education at the University of Melbourne, and funded by the Australian Research Council. It commenced in mid 2007 and concluded in the middle of 2011. Participants were students at the RCH who had access to laptop or netbook computers, members of the Education Support Team at the Education Institute, and some of the teachers of the students. While many of the students had their own computer, in some cases the student's school provided a computer, and in other cases computers were provided by the Education Institute or a charitable foundation operating at the RCH. At the start of the project the Education Institute relied upon computers donated by benefactors. In recent years the Victorian Department of Education and Early Childhood Development (DEECD) has provided more than 100 netbook computers and a set of iPad devices for use on several of the hospital wards.

Students with a chronic illness tend to follow one of several different and distinct patterns of school absence/attendance, ranging from complete absence for a period of weeks or months to regular (perhaps weekly) absence for all or part of a day. Throughout the remainder of this paper attendance at school will be referred to rather than absence from school. Figure 1 illustrates the most common patterns of attendance of the student participants in Link 'n Learn.

In this diagram the four labeled arrows represent the main patterns of school attendance. The students who attended school, and also the hospital, in an intermittent but regular pattern tended to be those who came in for treatments such as dialysis. This could mean coming into a hospital ward to be connected to a dialysis machine for 6 – 8 hours every second week for several months. Unfortunately the nature of some chronic illnesses means that at times this regular pattern changed dramatically, and the student either became quite irregular in their school attendance or stopped attending completely for some weeks or months.

Figure 1. Patterns of student attendance in Link 'n Learn
Both the pattern of attendance and the level of schooling are major influences on the motivation of students to establish contact with their teachers. However results from the Link 'n Learn project clearly indicate that most students have an innate desire to maintain membership of their peer group and to continue their formal school education, no matter the nature of their illness and consequent pattern of attendance.

Students were referred to the Link 'n Learn researchers by teachers from the Education Institute. This only occurred following approval from relevant medical and welfare staff. Students and parents who agreed to participate were interviewed about there current use of ICT across a whole range of areas, including word processing, watching DVDs, and social networking. Following a discussion with students and their parents, Link 'n Learn researchers contacted schools and then individual teachers.

2.1 Developing a model

One ongoing issue for students, researchers, and teachers in the project was that there was never a certainty that students, whether in hospital or at home, would be well enough to connect to a timetabled lesson. Often lessons were arranged for students who came into the RCH on a regular basis. For example a student might be absent from school every Tuesday while they had dialysis treatment. In theory the student might be on the ward for 8 hours, and be restricted in their movements around the ward. In Link 'n Learn it was decided to make use of web conferencing software to connect student and teacher. As will be demonstrated through two brief case studies, there were often technical and management problems in the classroom. In addition there was the effect of medication on the student, who often became very drowsy and was unable to concentrate.

In Figure 2 we illustrate an idealised model of what the Link 'n Learn project was planning to do. Unfortunately the individual situations in the hospital, in classrooms, or at the student’s home, were rarely ideal.

In this model we have shown the teacher in a classroom presenting material and interacting with students. It is not difficult to set up technology to allow both students in the classroom and the student at home or hospital being able to follow on their computer screens. When this situation
occurred it tended to work to the satisfaction of all participants. However the reality was different. Most classroom lessons involve the teacher writing on a board, constantly moving around the room, and rarely using any technology other than a data projector. During the four years Link ’n Learn has run there have been many experiments with a variety of configurations of computers, cameras, microphones and headsets. We now know that there is no single solution to the technical issues of connecting absent students to ‘live’ lessons.

Figure 2. An idealised model for hospital – school communication

2.2 Implementing the model
Experiences of two students in connecting with their schools will be presented in this section. The case studies have been deliberately chosen to illustrate extreme degrees of connection achieved over a period of four months in 2010. One constant, as was noted earlier, is that both students expressed strong desires to continue with their education in spite of severe health problems, and both talked about being “normal”. Lena and Kev will be the pseudonyms used for these students.

2.2.1 Unsatisfactory and devious school connection
In late March 2010 the following was part of an email sent to the Link ’n Learn research team by one of the RCH Education Support Team.

Hi Tony
I have a new referral for you - Lena ******** UR ********.
Lena suffers from a cardiac condition and is likely to put on the transplant waiting list. She is in ambulatory care today and tomorrow.
Lena is in year 9 and has her own laptop with wireless connection with her. She is reportedly an English "wiz" but maths seems to be a bit of an issue for her. She is really keen to video conference with her school as she's likely to be here at RCH every Monday and Tuesday.

The following day a researcher met with Lena and her mother in the Ambulatory Care ward of the hospital and explained the project and its aims. Both mother and daughter were keen to investigate the use of technology to assist Lena being able to continue to study, both when she was intermittently absent from school and later following a transplant when she would be recuperating in isolations for some months.

The next step in the process was to contact the school. Following some discussion it was agreed that Lena would talk to her mathematics teacher about the possibility of using video conferencing software to follow some of the lessons she would be missing, and her mother would discuss the same thing with the year level coordinator. Both teachers offered a range of excuses for not using any technology, and did not want anyone from the Link 'n Learn team to visit the school to demonstrate what would be involved. This continued until the mid-year break in June.

By this time Lena was quite often too ill to attend school, and the teachers were of the opinion that it was more important the Lena focused on her health and forgot about any school work and study. The fact that Lena had hours every day when she could not sleep, was not in pain, and her mind was clear and she wanted to do something meaningful was not considered to be relevant. Eventually the education system that the school was part of set up a meeting at the hospital and made sure that senior teachers and administrative staff from the school were in attendance. A plan of action was drawn up that included a Link 'n Learn researcher visiting the school to explain the project and to demonstrate two possible software options.

Suddenly, in the September school vacation, a donor heart became available and Lena had a successful transplant. The vacation enabled the Link 'n Learn team to introduce two of the teachers to some of the issues in using digital communications technology to teach an absent student. Within a few weeks Lena was able to connect to these teachers even though she was in an isolation ward at the hospital.

Eventually Lena was able to complete her Year 9 studies. However the idealised model shown in Figure 2 was not in practice. In this case the attitude and apparent indifference of the school and teachers created the impediment to assisting Lena in the continuation of her education. The application of technology was non-existent at the time it was initially required.
As will be discussed in the second case study, even when appropriate technology is used and there is cooperation between teachers and the student, the idealised model can still not always work to everyone’s benefit.

2.2.2 Hasty but satisfactory school connection

Kev was enrolled at a Government Secondary College in a northern suburb of Melbourne. He was in Year 11 and wanted to complete Year 12 and then undertake tertiary education. He began Year 11 some 18 months before becoming part of Link ‘n Learn. In the first year of that period he was often not well enough to attend school, but did not spend a lot of time in hospital. Eventually his condition was diagnosed, and he found out that he would have to have a bone marrow transplant. He began to spend one day every fortnight at the RCH having dialysis, and eventually chemotherapy. He was confined to bed for several days after each bout of treatment, and was completely unable to attend school. In terms of the attendance model presented in Fig. 1, Kev was “intermittent, regular” when he started with Link ‘n Learn, but soon became “None”.

When a student consented to join Link ‘n Learn, a school support meeting was set up by the integration teacher at the In addition to Kev and his father, who were connected by a conference phone, the meeting was attended by the integration teacher, a visiting teacher who made a weekly visit to Kev’s home to help him with his studies, two teachers of subjects Kev wanted to continue studying, and a Link ‘n Learn researcher. A plan was proposed and agreed to, with Kev’s English teacher agreeing to explore the possibility of using a web-based video-conferencing program for two lessons each week. A combination of the two web conference lessons and the weekly meeting with the visiting teacher was considered sufficient to enable Kev to pass the subject.

The English teacher, Tina, taught part-time at the school, and had two lessons with Kev’s class on Wednesdays. The Education Institute had purchased a licensed version of the Dimdim web conferencing software (www.dimdim.com), so with the support of the integration administrator Tina decided to investigate whether Kev could follow a lesson from home using his laptop. For the first lesson the camera on Tina’s laptop focused on the board she used when teaching, and Kev followed the lesson on his laptop screen from home. At a follow up meeting to this lesson it was decided that the configuration described above was not suitable. The major problem was that Kev could see only the board and could not hear Tina if she moved away from the board. In addition, neither Kev nor Tina could interact with each other.

In subsequent lessons Tina carried a wireless microphone so Kev could hear her no matter where she was in the room, and the integration teacher sat at Tina’s computer wearing a headset so she could hear and interact with Kev. A portable webcam was also used so that Kev could see Tina when she moved away from the board. This resulted in Kev being able to hear and see Tina throughout the lesson, and he could also ask, or respond to, questions through the integration teacher.
The screenshot in Figure 3 shows what Kev might have seen in a typical lesson. At the lower left of the screen is a video image of a classroom. In this case the camera is behind the teacher and showing some students. This mode was rarely used with Kev and Tina. On the right of the screen there is a space for chat messages. At times during a lesson the integration teacher would check with Kev that he had clear vision and sound. When Tina used a PowerPoint presentation or looked at web sites, these would appear in the centre of Kev’s screen. He could ask questions by talking to the integration teacher, by using the chat facility, or by writing or typing on the centre part of the screen.

Figure 3. A sample Dimdim screen with video, shared whiteboard, and chat

This case study has clearly illustrated some of the recurring issues that have been present to greater or lesser extents for every group of Link ‘n Learn participants. Schools are designed for traditional face-to-face teaching, and this is what teachers are trained to do. Because Kev’s school and teachers were willing to make a special effort, two teachers were available for each video-conference lesson and an IT technician was available when there were technical problems. All of this is a significant drain on already scarce resources of personnel and time. The technology has become so widespread that a lack of it is no longer an issue when schools need to communicate with a student off campus, at home or in hospital. The people resources are critical for students such as Kev, but they are spread very thinly in most education systems.

2.3 Discussion

In addition to health issues there are several other areas of concern reported by most young people with a chronic illness. Three of these concerns that are relevant to Link ‘n Learn are prolonged absence from school during treatment and recuperation, separation from peers, and possible appearance changes. Almost all the young people interviewed for this project have expressed a
strong desire to be like their peers – to be considered as a ‘normal’ member of their social group. This concept of normality appears to be based partly on the belief/assumption/hope by the young person that their illness is transitory, and soon they will be as they were previously. Because they had regularly attended school before their illness, many hospitalised young people want to establish a sense of educational continuity.

One of the most significant findings from Link ‘n Learn has been the almost unanimous desire of young people forced to miss school because of a chronic illness to continue their education. The resilience shown by these young people in overcoming uncertainty and pain as they struggled to study was unexpected by the researchers, medical staff, or parents. This finding has to be utilised and built on in order to assist current and future young people hospitalised with a chronic illness. Employing communications technology such as video conferencing to connect hospitalised young people to schools and teachers has led to instances of intermittent visual contact between young people and some of their peers. In turn this has resulted in requests from the young people to more formally establish links with friends and classmates. In the second decade of the twenty-first century both the will to connect these young people with their teachers and appropriate technology are available. However teachers have neither experience nor training in one-to-one online teaching, and because this is so different to normal classroom teaching it can be an impediment to many teachers.

Previous reports have considered some of the issues that confront teachers when a student in their class is absent with a chronic illness. Results from Link ‘n Learn suggest that two factors lay behind much of the apparent teacher reticence encountered when teachers were asked to use some form of digital communications technology to connect with a student absent from their class. Overall teachers reported a low self belief in their ability to effectively use technology for teaching, particularly in a one-on-one teacher student context. This concern about technical proficiency, together with apprehension about the availability and setting up of technology in a classroom, were reported by almost all teachers contacted or interviewed in the project.

Surprisingly, even teachers who became part of the project and had used online video-conferencing or some other mode of digital communications for more than a school term, had initial reservations. Every teacher contacted had a laptop computer with a webcam and microphone, so equipment at a basic level was available to all teachers. However none of the teachers had ever contemplated, let alone practiced, teaching in an online environment. Consequently even those teachers who were frequent users of social networking sites, or used software such as Skype®, were uncertain about communicating with teaching a student using technology. What this suggests is that it is difficult for many teachers to transfer knowledge and skills they have from personal use of communications technology into an educational setting.
Link ‘n Learn and other studies conducted through the RCH Education Institute have shown that it is feasible for students absent from school to use digital communications technologies to continue their education. However, if the teachers in this project are typical of classroom teachers today, then teachers lack some of the knowledge and skills necessary to move into teaching through web conferencing. In the case study presented here, 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.

3. CONCLUSION
As the data collected for the Link ‘n Learn project continues to be analysed and evaluated, the two most significant findings appear to relate to the desire of students to continue their schooling, and to the attitude of those teachers who have enabled this to occur. Initially there were many adults, including medical staff, parents, and teachers, who doubted the strongly expressed desire to continue their education in some way that came from students with a chronic illness who know they would be absent from school for an extended period of time. For the students continuing schooling might involve reducing the number of subjects they studied, and consequently take more time to complete their schooling. Almost every student participant in Link ‘n Learn who was at upper primary level or above expressed an aspiration to work around bouts of poor health, hospitalisation and recuperation in order to maintain some degree of academic continuity.

Digital communications technologies continue to become more sophisticated, more portable, and easier to use. In the second decade of the 21st century web conferencing and other modes of digital communication are easily accessible by classroom teachers and students at home or in hospital. Hospitalised students at the RCH were able to access the internet in most wards through a wireless network. If students did not have their own wireless enabled computer they could be loaned one. Consequently, while they were in the hospital there were no technological reasons for students not being able to connect with their teachers in order to establish a semblance of continuity in their education.

However this is sometimes not the case in schools, as there appear to be several school-based impediments to such connections. Having access to appropriate technology in schools has become a minor issue. However access to that technology at specific times and setting it up are major issues in many schools. In addition there is the issue of teachers possessing appropriate knowledge, skills and the motivation to teach in a new and pedagogically different manner. Perhaps something should be required in all pre-service teacher education courses, so that all candidates are able to gain experience with one-to-one online teaching strategies that would be appropriate for use with hospitalised students. Currently the success of educational connections
between hospitalised students and their teachers is highly dependent on the personal willingness of teachers to use communications technologies in different ways and for different purposes, and to apply pedagogical techniques for which they have neither appropriate training nor experience.

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