Innovative Learning Environments (ILE)

INVENTORY CASE STUDY

The Royal Children's Hospital, Melbourne

Australia

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The RCH Education Institute's work is underpinned by contemporary pedagogical theory and teaching staff are required to have a flexible and responsive approach to teaching and learning as learners may be undergoing medical procedures and tests, changing drug regimes, feeling ill, etc. Making use of the hospital community (including multidisciplinary teams and hospital departments) and external partners (such as local authorities and not-for profit organisations) facilitates the inclusion of learning as an important aspect of 'normal' development for children and young people with health conditions.

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SUMMARY

The Royal Children's Hospital (RCH) in Parkville, Victoria, while not traditionally thought of as a learning environment, is a place in which the healthy ongoing development of children and young people is facilitated beyond their physical wellbeing to include social and education support. To achieve this, the RCH has an Education Institute, which employs teachers, researchers, and communication and administration teams to assist children and young people in this setting to remain or re-engage with their education. This Education Institute is funded by the Victorian Government Department of Education and Early Childhood Development (DEECD). It is in a unique position to combine evidence-based research with the implementation of practical teaching applications to facilitate the hospital as an environment where patients are engaged, curious and interested in learning.

The RCH Education Institute's work is underpinned by contemporary pedagogical theory. Teaching staff of the RCH Education Institute are required to have a flexible and responsive approach to teaching and learning as on any given day children and young people may be undergoing medical procedures and tests, changing drug regimes, feeling ill, suffering from a lack of sleep, be admitted, be discharged, etc., and this requires constant willingness and ability to change and work within an environment not principally designed for learning. Making use of the hospital community (including multidisciplinary teams and hospital departments) and external partners (such as the DEECD, and not-for profit organisations including the Fight Cancer Foundation and the KOALA Foundation) facilitates the inclusion of learning as an important aspect of 'normal' development for children and young people with health conditions.

AIMS OF THE INNOVATIVE LEARNING ENVIRONMENT AND THE NATURE AND HISTORY OF THE INNOVATION

The Royal Children's Hospital (RCH) in Melbourne, Australia is an internationally recognised centre for paediatric treatment, teaching and research. The RCH is located in the state of Victoria and extends care to children and young people from other Australian states and territories and from overseas (The Royal Children's Hospital [RCH], 2011a). A staff of close to 4,000 people provides a range of clinical services, tertiary care, health promotion and prevention programs, training, teaching and research across the campus in conjunction with The University of Melbourne and Murdoch Childrens Research Institute. The RCH treats approximately 35,000 inpatients annually, with an additional 220,000+ outpatient occasions of service, 7,500+ children undergoing surgery from the waiting list, and over 67,000 children presenting to their emergency department each year (RCH, 2011a). The majority of these children are of compulsory school-age (aged five and older). Each hospital visit can represent a significant amount of time spent out of school.

The RCH was established in 1870. In late November 2011, the hospital will be moving into a newly built, state-of-the art paediatric facility (RCH, 2011a). The new RCH is a public-private partnership between the Victorian Government Department of Health, the Royal Children's Hospital and the Children's Health Partnership consortium (State Government of Victoria, nd). Its design is based on guiding principles developed in consultation with RCH staff and patients and their families and informed by Australian and international best practice. These guiding principles are:

- child and family centred
- operationally efficient and flexible
- safety in design
- decisions supported by evidence
- partnerships and linkages
- promoting a learning environment (State Government of Victoria, nd).

The new RCH features predominantly single-bed rooms, increased levels of natural light and parkland views, and a two-storey aquarium and various interactive displays. Its 'main street' includes shops, cafes and amenities for patients, families and staff and environmental features to ensure it is Australia's greenest hospital (State Government of Victoria, nd).

The design and development of the new RCH offers a unique opportunity to rethink and redesign teaching and learning spaces and approaches for children and young people when they are at the hospital. Increasingly the RCH is being recognised as an alternate learning space where children and young people are seen not only as patients but also as learners (RCH Education Institute, 2010). The commitment of the RCH to children's learning is demonstrated by the formal inclusion of teaching and learning in the key action areas of the RCH Strategic Plan 2011-2013: *"Ensure provision of evidence-based educational support for patients in an innovative and creative patient-centred learning environment"* (RCH, 2011b, p.15).

Teaching and learning have been a strong part of the support provided to children and young people at the RCH since the first teacher provided wide-spread educational support within the hospital in 1938-39 (RCH Education Institute, 2010). In 1969, the increasing number of children requiring education support led to the opening of the RCH Hospital School that existed up until 1999. With the closure of the school, the RCH Education Institute was founded.

The RCH Education Institute is a company limited by guarantee that is governed by an elected Board of Directors. The RCH Education Institute works in partnership with departments of the RCH, the Victorian Government Department of Education and Early Childhood Development (DEECD), the Catholic Education Office, Independent Schools Victoria, and other RCH campus partners (such as the Murdoch Childrens Research Institute and The University of Melbourne). The RCH Education Institute is funded by the DEECD to provide education support to patients of the RCH and the Peter MacCallum Cancer Centre (PeterMac). The Institute is also supported by philanthropic support, especially through charitable donations of funding to enhance access to new information and communication technology equipment.

In accordance with the triennial agreement between the DEECD and the RCH Education Institute, the strategic priorities of the RCH Education Institute to June 2012 are to:

1. Deliver evidence-based/best practice education support for children and young people associated with the RCH, reflecting the principles of patient, student and family focussed practice, and
2. Take a leadership role in the generation, transfer and exchange of knowledge at the education/health interface for children, young people and families, relevant professionals and the broader community.

The RCH Education Institute works in collaboration with young people, families, schools and education and health professionals to ensure that children and young people continue to engage in learning and remain connected to their school community throughout their health journey (RCH Education Institute, 2011a). The RCH Education Institute has 14 teachers who are registered by the Victorian Institute of Teaching, four education support officers and 14 non-teaching staff (including leadership, knowledge translation, research and administrative teams). These staff create vibrant learning spaces in a health environment that supports individualised learning opportunities on wards, in outpatient and other locations across the RCH and at PeterMac in East Melbourne, to assist children and young people in their growth and development as learners. The teachers also provide advice about educational issues to young people and their families through specialist clinics such as the neurobehavioural clinic and the paediatric integrated cancer service long-term follow-up clinic (RCH Education Institute, 2011a).

The RCH Education Institute also has a designated research program which focuses broadly on the learning, development and wellbeing of children and young people in out-of-school settings such as hospitals, and in schools and the community. Its research generates evidence for policy, programs and day-to-day practice to strengthen educational outcomes and the overall wellbeing of children and young people (RCH Education Institute 2011b).

In 2010-11, 1,590 children and young people received direct education support from the RCH Education Institute. The majority of these children and young people were enrolled in secondary (51.7%) or primary school (38.9%). Children in the pre-school years, at special schools, young adults in post-compulsory schooling and those not enrolled in formal schooling (9.4%) are also assisted by the RCH Education Institute. Referrals to state government education regions, Catholic Education Office dioceses and Independent Schools Victoria were also made to obtain additional education support for children transitioning back to school (5.6% of those directly supported).

The RCH Education Institute undertakes it work underpinned by the premise that hospitals offer enormous potential to promote children's learning and development at the same time as caring for their health needs. A key driver of the RCH Education Institute is the importance of children's learning as a central component of their lives. As one RCH Education Institute teacher reports:

> *"The Royal Children's Hospital is a ... unique environment - it is one of the most rewarding jobs that I've worked in. You really get to see the spirit of young children and despite what they're going through, how eager they are still to learn."*

For many children, extended periods of hospitalisation, repeat admissions and/or frequent visits to the RCH span multiple stages of learning and development. These interruptions can have implications for later occupational attainment, earning ability and quality of life (Shankar et al., 2005; Haas & Fosse, 2008). Given the evidence that it is important for children's learning to stay relevant to their lives and that they engage with alternative learning spaces and places that lie beyond school (Comber, Nixon & Reid, 2007), the hospital setting represents an important site for reducing the educational risks apparent for children with health conditions.

STRUCTURED PATTERNS AND CHARACTERISTICS OF THE LEARNING ENVIRONMENT

The learning environment of a hospital setting poses both great opportunities and challenges for the ongoing education of children and young people.

Pedagogical underpinnings of the RCH Education Institute

Underpinning the work of the RCH Education Institute is a commitment to the building of rich learning opportunities within the RCH where children continue to make connections to learning and encounter stimulating learning environments. Our pedagogy is predicated on the idea that *"[c]hildren will always learn";* from play, in classrooms, from peers and family, from television and books, from doctors and nurses (Orr, 2010, p.14). Bronfenbrenner's (1979) child development perspective highlights how everything in a child's immediate environment affects how a child grows and develops. The more encouraging and responsive children's environments are, the more likely the child will grow, develop and cope positively. Strong links between health and education during hospitalisation are therefore critical to children's longer term life outcomes. Thus, as an institution the RCH can play a role as a place that is conducive to learning through the provision of opportunities for children and young people to engage in meaningful projects through exploration and investigation. The commitment to these learning opportunities contributes to children's longer term outcomes including their health, wellbeing, education and continuity of their identities as learners (Niselle, Green & Scrimshaw, 2011).

A constructivist approach (Dewey, 1933; Bruner, 1960) informs the overarching philosophy of teaching and learning for this Institute. Utilising this theoretical approach leads to the development of teaching and learning projects that enable children to construct their own understandings reflective of their prior experiences, knowledge and social and cultural contexts (Vygotsky, 1978). The context of hospital teaching thus requires teaching practices to reflect play and inquiry-based learning approaches. Each child, regardless of their age,

school grade, health status, or length of stay in the hospital, brings a unique set of learnings and experiences to the hospital-education setting. It is the task of the teacher to uncover these prior learnings, and build on them in order to support the child's individual learning, educational and developmental needs.

Such an approach enables the RCH Education Institute teachers to:

- recognise the different needs and experiences of each child
- support the preferred learning styles of each child
- have high expectations of all children
- recognise prior competency, and
- scaffold experiences to build new knowledge.

For example, the RCH Education Institute teachers take a multi-modal approach to literacy and numeracy by recognising the 'knowledge processes' of experiencing, conceptualising, analysing and applying knowledge (Kalantzis, Cope and Cloonan, 2010). In doing this, both the pedagogy and teacher practice move beyond just engagement with and assessment of instrumental skills towards a more holistic approach to literacy and numeracy learning and comprehension.

The RCH Education Institute's work is carried out on the understanding that the majority of children they support will either be about to enter, or have come from a school setting, and/or will be returning to a school setting. In the senior years of secondary education, therefore, focus is on education support for each young person's individual work requirements for their course of study. This may mean engaging with the academic requirements of the Victorian Certificate of Education (VCE; which is the state school completion certificate), the Victorian Certificate of Applied Learning (VCAL), Vocational Education and Training (VET) courses, traineeships and alternate learning programs as determined by statutory requirements. For younger children, greater curriculum flexibility allows for the work of the RCH Education Institute to focus more strongly on developmentally appropriate practice (DAP) (Fleer, 2009; Yelland, 2011) as well as build on engagement with alternative learning spaces and places that lie beyond school (Comber and Kamler, 2004).

Education support model of the RCH Education Institute

Personalised learning is especially important within the context of education within a hospital setting; the health conditions and/or treatment can engender academic, social, physical and personal problems for children and young people. These may each impact upon a young person's ability to attend school, complete school work, interact with peers and teachers and often can transcend multiple critical transition points and developmental stages. Children also come into the hospital with a wide range of experiences, skills and knowledges; hospital teachers cannot assume any shared background between patients with regard to their prior learning experiences. As such the RCH Education Institute teachers consult with priority patients and their families to establish the factors that impact on children and young people at multiple levels including:

- the individual level (including factors such as stages of development, personal interests, identity as a learner),
- the hospital level (such as the length and frequency of admissions, health status),
- the school level (including current pedagogical and other requirements and needs associated with the enrolled school environment, contact between school, home and hospital),
- the broader Victorian curriculum frameworks and requirements (including the Victorian Government's Principles of Teaching and Learning (Department of Education and Early Childhood Development [DEECD], 2008), the e5 instructional model (Engage, Explore, Explain, Elaborate and Evaluate) (DEECD, 2009a) and the Victorian Essential Learning Standards (DEECD, 2009b), and
- the broader social and environmental influences that impact on the key dimensions of children's health (including social, physical, cognitive development and wellbeing (Keating & Hertzman, 1999)).

This requires RCH Education Institute teachers to work within multidisciplinary clinical and allied health teams to identify the likely lengths of stay for patients and the implications of their health condition on teaching to ensure they can provide appropriate learning support for the children and young people within the hospital setting. For example, as part of the multidisciplinary assessments of primary school aged children with learning disabilities or conditions such as attention deficit hyperactivity disorder (including for example paediatric, special education, psychological, occupational therapy and psychiatric assessments), a special education assessment and consultation is conducted by RCH teachers that is included in the holistic care and Student Health Support Plans that are developed for these children.

Especially important to the education support model of the RCH Education Institute is identifying the children and young people who are most in need of educational support. To this end the RCH Education Institute is developing a priority patient identification process. This process will involve the implementation and trialling of eligibility and at-risk criteria developed in consultation with multi-disciplinary teams and evidence from the RCH Education Institute support database. School aged children at the RCH will be screened in relation to a number of criteria and support in the first instance will be determined based upon those considered most at-risk educationally (either as a result of, or in addition to, their medical condition). Examples of criteria for prioritisation of patients include those with a chronic health condition, expected to miss significant periods of school, students from culturally and linguistically diverse or Indigenous backgrounds, those in the final years of compulsory schooling and children with learning difficulties, among others.

The RCH Education Institute teachers provide opportunities for children and young people to undertake rich, authentic projects where they can focus *"on real-world, complex problems and their solutions"* (Lombardi, 2007, p. 2). Where it is practical and permissible within the confines of the health conditions (for example, the risk of cross-infection present with some health conditions), collaborative inquiry is encouraged and facilitated through the use of shared learning spaces and information and communication technologies. To facilitate meaningful and worthwhile learning opportunities, projects are developed that link to monthly topics which include where possible the celebration of major education events such as Children's Week or NAIDOC week, as well major milestones in Australia history (e.g. Australia Day). A breakdown of topics for 2011 is shown in Table 1.

Table 1: Monthly topics and special days/weeks concentrated on by the RCH Education Institute for 2011

Month	Topics	Special days/weeks
January	Land Down Under (Australia)	Australia Day
February	It's all about me (cultural focus)	
March	We are one, but we are many	Cultural Diversity Week
April	Connect it (ICT and technology)	National Youth Week Anzac Day
May	Learning journey	Education Week Sorry Day
June	Indigenous people worldwide	
July	Change – the next step is ours (focus on Indigenous Australians)	NAIDOC Week
August	Let's celebrate	National Science Week Book Week Literacy/Numeracy Week
September	Ready, set, go! (sport)	Day of Peace
October	Get green (recycling)	Children's Week
November	On the move (transformation)	Recycling Week Patient Move Day (to new RCH)
December	Our world, let's celebrate (celebrations around the world)	Human Rights Day Christmas Hanukah

An example of both authentic and collaborative learning within the RCH is the 'Trans-Tasman Project' where a number of students from different age groups across the hospital worked together to gain an understanding of how the Christchurch (New Zealand) earthquake affected the young people in that region. Assisted by the RCH Education Institute teachers, young people across the hospital connected with a school in Christchurch which was affected by the earthquakes. These students created a blog to facilitate input, voice and decision making about the project with the aim of raising funds through the development and selling of wrist bands to benefit those affected. An excerpt from the blog is provided as Figure 1 as an example of the collaborative enquiry, discussion and decision making. Students of different age ranges, sex, cultures and across different wards of the hospital all combined to participate in this student-led, inquiry-based collaborative project. Hospital-wide communication between the young people occurred via various mechanisms including face-to-face meetings in the hospital, via the blog and using an iPad walkie-talkie application between hospital floors and wards.

Figure 1: An excerpt from the Trans-Tasman project blog

WEDNESDAY 1 JUNE 2011
TIME TO DECIDE ON WRISTBAND DESIGN
Thanks to all who have participated in our blog. We are almost there. All we need now is for you to vote on our new poll and tell us what you think. What will be the colours/slogan   that   will fundraise   money to   send   to   Christchurch?

While you are there, have a think what nurses, doctors and parents would like to buy besides   the   wristbands.
e.g. pens
Posted by RCH PROJECT TEAM at 22:36

2 COMMENTS:
Anonymous said...
I like the colours blue, silver and black with the phrase help fill the cracks. Would it cost more if we printed several different colours so people could choose?
5 JUNE 2011 15:56

Anonymous said...
i think red and black because it says fill in the cracks
5 JUNE 16:52

WHAT SHOULD THE WRIST BANDS LOOK LIKE?

RED&BLACK- be brave & strong	3 (17%)
RED&BLACK- hand in hand	6 (35%)
WHITE&BLACK- hand in hand	5 (29%)
RED&BLACK- help fill the cracks	8 (47%)
WHITE&BLACK- help fill the cracks	2 (11%)
BLACK/SILVER/BLUE- c'mon you can do it	1 (5%)
BLUE-ORANGE- courage	1 (5%)
BLUE/WHITE/RED- pride	3 (17%)

Votes   so   far: 17
Poll closed

The education support team at the RCH Education Institute

The RCH Education Institute has education support staff in a number of different roles to most effectively and efficiently implement its education support model. These roles include those as shown in Table 2.

Table 2: Education support team roles and responsibilities at the RCH Education Institute

Roles	Responsibilities
Manager, Education Support	To provide strategic and dynamic leadership to, and management of, the Education Support team. Part of this role includes leadership in the design, development and implementation of innovative and responsive strategies that maximise the available resource for the provision of targeted and effective education support to children and young people with chronic health conditions and their families.
Leading teachers	The leading teachers lead and manage a team of teachers and support staff in the development, delivery and evaluation of contemporary curriculum programs across the RCH wards.
Teachers	The role of the teachers is to engage and support children and young people with their education through the development and delivery of contemporary curriculum across the hospital wards and to identify those who are educationally at-risk.
Education support officers	Education Support Officers provide support to the teachers in the preparation, delivery and evaluation of learning and provide administrative support to the teachers such as database entry and preparation of educational resources.
Regional liaison teachers	The Regional Liaison Teacher receives referrals from teachers assigned to wards/areas of the hospital for children and young people who are identified as being educationally at-risk. The Regional Liaison Teacher enters into dialogue with key personnel in the appropriate DEECD Region, CEO Archdiocese or Independent Schools Victoria to provide additional education support for students and their home school to optimise their educational opportunities and transition back to school.
Volunteers	Volunteers (consisting of pre-service and/or retired teachers) assist students in specified wards or online as required. They are supervised or provide their assistance within a public area when working face-to-face with RCH patients and electronic communication is monitored to ensure quality and consistency of messages.

Learning spaces at the RCH

Education support is provided across a number of difference spaces and places of the RCH, including inpatient wards, day treatment areas, outpatient areas and specialist clinics. Therefore, learning and education can take place in a number of unusual and unique environments. Each of these spaces has innovative elements that provide opportunities for learning in environments generally not created for education and learning purposes. A couple of examples of how different spaces across the RCH are used for education and learning are provided below.

Adolescent learning spaces

Adolescents account for 15% of all hospital admissions to the RCH. A needs analysis and consultation in early 2009 indicated a desire to address the diverse educational and specific developmental needs of adolescents. This resulted in the development of an evidence-based adolescent learning environment within the RCH designed to support varied learning modes (Wilks, 2010). In particular, as social and emotional interaction is particularly important during the adolescent years with identity, psychosocial development and emotional maturation critical factors in maintaining normal development, a diverse learning space including individual and group-discussion spaces, retreat areas, information centres, lounge and recreation spaces and storage spaces has been created. This learning environment has also been enhanced by the provision of a number of different learning tools including an interactive whiteboard, netbooks (both within the learning space itself and attached to the bedside tables of beds on the adolescent ward), iPads and iPod touches. A partnership with Livewire was also developed to promote and provide access to a secure and moderated social networking site (Livewire.org.au) for young people with chronic illnesses. As reported in the evaluation associated with the creation of the adolescent learning space, activities reported by participants within the space included:

- learning (for school; about art, music, space; doing homework; for creative writing; to watch documentaries), and
- socialisation and relaxation (playing pool, other games, computer games; watching television; making their own fun).

Along with educational benefits, social and emotional benefits associated with having designated adolescent learning spaces have been noted by both adolescents and RCH Education Institute teachers (Meade et al., 2010):

> *"It's very good that everything's organised and easy to access. The teachers are helpful and easy to talk to, just for general chats if you are a bit lonely"* (Adolescent).

> *"Makes you feel part of the real world and not so alone when you are away from all your friends"* (Adolescent).

> *"The learning space not only acts as an educational centre but during school time it also plays a large part in students socialising, interacting, creating friendships and group learning with their peers. Without the school sessions this social interaction would scarcely exist"* (RCH Education Institute teacher).

Waiting spaces as learning spaces

A number of spaces across the RCH are places where children and their families spend time awaiting appointments for, or undergoing, various treatments and consultations. Such areas include the Outpatients Departments and Ambulatory, among others. In 2009-2010, over 40,000 children attended 150,874 outpatient appointments for review of their medical or surgical conditions. Since 2009, the RCH Education Institute has located a teacher specifically to the waiting room of the main Outpatients area:

> *"In the Outpatients area, children and young people are waiting for their appointments, so it's the perfect opportunity to engage them in something educational."*

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Most outpatient clinics are held between 9.00am and 5.00pm Monday to Friday, and cater for children and young people of all ages. The waiting room is an open space that is also regularly staffed by RCH play and music therapists. The area is equipped with tables, chairs, a sink, an interactive whiteboard, and a wall where work completed by children can be displayed. To support adolescent learning in this area, two internet cafes and a mobile music centre (known as a RockHub), have been set-up in this space. The learning activities for this space are specifically designed to be informal, loosely structured, fun, alluring and catering for a wide range of ages and developmental stages.

An example of the learning activities undertaken within this area is a dinosaur claymation that was created in late 2010 (Figure 2). As the outpatient teacher explained (personal communication, 2011):

> *"Following on from Science Week where we investigated fossils; I identified an interest in fossils and more specifically Dinosaurs. Working in collaboration with the Play Therapist* [assigned to the Outpatients Department] *we developed a Dinosaurs inquiry topic. We discussed the types of learning that occur in Outpatients – technology is a great 'hook' to get the children and young people engaged.* [A student teacher working with us had] *previous experience with Claymation so together we developed a unit plan for this. The structure of the unit had to be flexible, cater for a range of ages and have the ability for students to spend only a couple of minutes on and up to two hours working on. ... The claymation was very successful because it was a collaboration between myself and many students over a two week period. It's hands on, they get to use different technologies and the students were able to learn from each other."*

Figure 2: Outpatients Dinosaur Claymation Activity

Outpatient activity needs - short-term, engaging (especially for boys as often activities in this area are frequented by girls), include multiple stages, involve multiple children, varying age ranges (18 months to 18 years)

Objectives:
- to learn about, recognise and distinguish different eras in which dinosaurs lived
- to conduct research into dinosaurs
- to be able to identify herbivores and carnivores
- to be able to effectively communicate ideas within a group environment
- to plan, create and produce a claymation film in collaboration with other students
- to effectively communicate a visual story to the viewer without using spoken words

Approach: Two week implementation. In the first week, children contributed to a Dinosaur book, which included research, facts and their own prior knowledge of dinosaurs, and made clay dinosaurs based on what they had researched. In the second week children used PowerPoint to create a story board for the claymation and then filmed it over a one-day period using a digital camera. The children then transferred the photos to a netbook, inserted them into Microsoft Movie Maker™ and had a premiere viewing of the production on the last day of this two-week activity.

Curriculum areas covered: technology, arts, maths, english and others were demonstrated by the participants through the planning, creation, and production of a film about dinosaurs and how they became extinct.

Technologies for learning

Information and communication technologies (ICTs) such as laptops (or netbooks), email, iPads, online tutoring and video conferencing play an important role in supporting learning and connection to education for young people with a health condition (Wilkie & Jones, 2010). As part of a more effective approach to the provision of education support for children with health conditions, the huge potential to use technologies to connect children with their schools and contribute to a learning culture within a hospital setting is increasingly being realised. Such technologies are vitally important tools for these cohorts of children and young people to access both educational and social support while they are absent from school (Nisselle, Hanns, Green & Jones, accepted for publication).

The RCH Education Institute has forged a number of partnerships and collaborations with different organisations (such as with DEECD, Soundhouse, Livewire and the KOALA Foundation), to obtain a large variety of ICTs to increase access and availability of such technologies for children and young people at the RCH. At present, the RCH Education Institute has the following types of digital technologies available:

- netbooks (small laptops)
- Apple iPads
- Apple iPod touches
- flip video cameras
- digital cameras
- interactive whiteboards (both fixed and moveable)
- music rock hubs (including keyboards, guitars, microphones, electronic drum kit, etc).

Figure 3 shows examples of the use of technology across the RCH.

Figure 3: Technology in use across the RCH
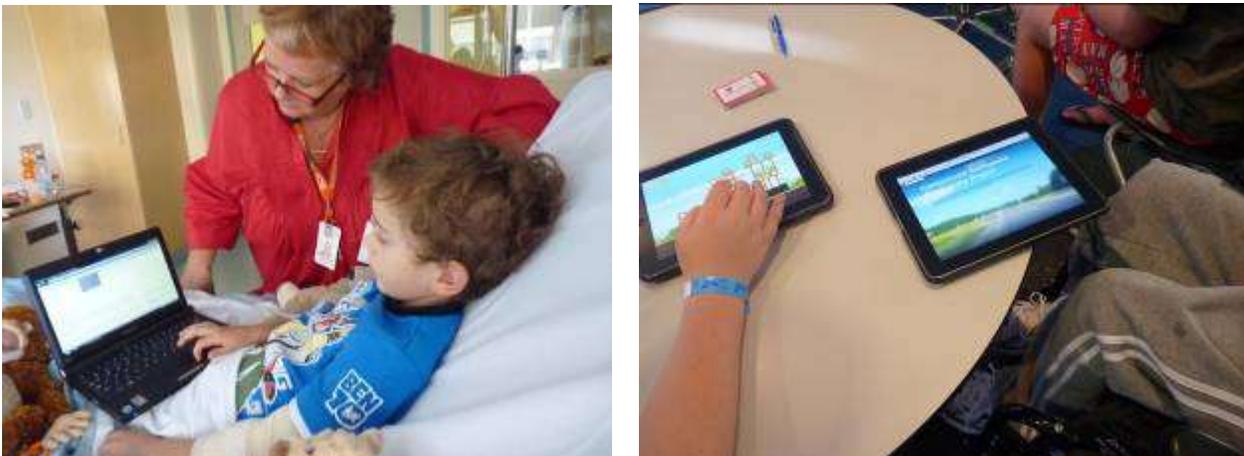
The role of one ESO at the RCH Education Institute is solely to support the access and distribution of these technologies across the hospital. Netbooks are made available to young people and their families on wards and in ambulatory areas of the hospital. In order to use a netbook, a parent must sign an Acceptable Use Agreement, and then a username and password are issued. To increase access to

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netbooks across the hospital, a number of netbooks are securely attached either bedside on wards or fixed to furniture within ambulatory and outpatient areas. Young people are able to access free 2GB USB flash drives from RCH Education Institute teachers or use email to save and transfer their work between the hospital, home and school.

As the majority of children and young people are isolated from peers even within the hospital during their hospital stay due to their need to stay in bed, the access and availability of ICTs to facilitate social connection and limit social isolation is hugely important for the ongoing healthy development and wellbeing of these children. Strong connections between the RCH Education Institute and external partners have been established to investigate, amongst other things, the use of different technologies for keeping young people engaged with learning and connected with their peers and school communities while in hospital. Such projects include those as listed in Table 3.

Table 3: Technology-based partnerships and research projects of the RCH Education Institute

Project title	Aims	Collaborative partners	Funding body
Link 'n' Learn: An investigation into strategies for using ICT to address educational disadvantage resulting from prolonged school absence	To provide evidence on the ways in which information and communication technologies can be used to effectively connect children and young people that are experiencing a range of physical, social and emotional health issues, with their schools and education.	Melbourne Graduate School of Education, The University of Melbourne	Australian Research Council Linkage Grant
An investigation of the use of netbooks by children and young people at The Royal Children's Hospital	To evaluate the use of netbooks by children and young people in wards and outpatient and ambulatory clinic areas.	Melbourne Graduate School of Education, The University of Melbourne	Australian Research Council Linkage Grant and RCH Education Institute
In Their Hands – iPads for Learning Trial	This project seeks to assess the impact of the introduction of iPads within the hospital setting and to clarify the role of the iPad in the teaching and learning of children and young people.	Victorian Government Department of Education and Early Childhood Development (DEECD) Student Learning Division	DEECD
Overcoming a child's absence from school through ambient orb technology	To investigate the impact of creating a presence in the classroom for children who are absent from school due to hospitalisation.	Department of Information Systems, The University of Melbourne	Institute for Broadband-Enabled Society, The University of Melbourne

In July 2010, the RCH Education Institute was invited to participate in a Victorian Government DEECD trial of iPad technologies for learning. As one of 10 trial sites, the Institute was provided with 20 iPads for patient use (DEECD, 2011a). Each week, two iPads sessions were held within the activity centre on the neurobehavioural and rehabilitation wards for children and young people who were mobile and could leave their beds. Additionally, iPads were loaned out on a daily basis to the children and young people in these clinics. Children in these clinics are often long-stay patients and thus can have a large disconnect with their school and peer group. The iPads have allowed teachers to create more of a group learning environment than had previously been possible on these wards; helping to create a sense of group and peer-support with students who are spread out across various wards in the hospital and in some cases confined to bed. Since becoming actively involved in this trial, the use of iPads has spread across all wards of the hospital, and these have become a great tool for adolescent engagement and a driver for the Trans-Tasman project mentioned earlier.

Additionally a general improvement in motivation and engagement for learning has been noted by teachers in these clinics due to the availability of iPads:

> *"They [the children] see it as a game – so that helps."*

RCH Education Institute teachers have also noted that such technologies have proved particularly useful for children and young people who have disabilities or impairments:

> *"There is one young person who has only got use of one hand who has actually taught himself how to use all of the applications on the iPad. We've seen a great improvement from being able to just use one finger to now he can move most fingers. So it's been great."*

> *"The iPads are just great in the cancer centre – many children's eyes are affected by the treatment for their cancers and the iPads are good because the children can enlarge the images easily using their fingers so they can see it better."*

Parent feedback about the use of these tools has also been really positive:

> *" ... has also really enjoyed having access to an iPad. He has missed a large amount of school due to being unwell and the iPad has been a great educational resource."*

Digital technologies then, are proving highly useful tools in creating a virtual space within which learning and educational connections are maintained and mediated when the child is absent from school. The ongoing testing of such 'virtual connections' is important for the RCH Education Institute in light of the move to the new RCH which is 85% single bed rooms. New technologies seamlessly integrate a child's learning and educational journey regardless of where they are physically located. Thus a child who is absent from school for a day every week in order to attend hospital for regular ongoing treatment (such as haemodialysis, or chemotherapy) can maintain critical links with their school communities and peers, reducing their risk of educational disengagement.

NATURE AND QUALITY OF THE LEARNING

A flexible and responsive education support model is required within a hospital setting. On any given day children and young people may be undergoing medical procedures and tests, rehabilitation, physiotherapy, having changing drug regimes, feeling ill, suffering from a lack of sleep, etc., and therefore teachers must be responsive to the needs of each individual child, each and every day. Flexibility and a willingness to start and stop activities as needed is therefore vitally important for working in a hospital setting. As the Manager of the Education Support Team notes:

> *"We have teachers that are very responsive to the children's needs, that work within a health environment in a very productive way."*

Teaching opportunities are provided for children and young people in a multitude of ways including:

- at daily designated group activities
- at bedside for individual activities in inpatient and rehabilitation wards
- in outpatient and day treatment waiting areas
- using wireless internet enabled iPads and netbooks
- at activity tables in the RCH main foyer and cafeteria during special weeks (see Table 1 above).

The group activity sessions are held daily for one to one-and-a-half hours across different wards of the hospital with children and young people being encouraged to attend by both RCH Education Institute teachers and ward staff. While initially some resistance to attending group learning sessions while in hospital was noted by the RCH Education Institute teachers, this has changed over time:

> *"Now they have something in the mornings that's regular, they get themselves up, out of bed. Initially, they never did, and we had to really kind of push and encourage. Now they are sort of doing that on their own and they are a bit more responsible for their own learning, they see other kids learning and they want to have a go. When other patients come in, they see a group of us going into the space ... They're asking, what is that about and they are keen to get involved"* (Meade, et al., 2010).

The benefit of providing these opportunities has been noted by patients' parents:

> *"We've also had parents talk that after some of the little projects we've run ... that the only reason that* [their child] *has passed the year level ... was because of* [their] *involvement here with organising these activities and running the schoolwork and that they come directly from the teacher"* (Meade, et al., 2010).

The RCH Education Institute also has teachers available for children and young people within a number of the different specialist clinics at the RCH. These include, among others, the Victorian Paediatric Rehabilitation Service (VPRS), the Neurobehavioural clinic and the Paediatric Integrated Cancer Service. The VPRS provides a multidisciplinary service for approximately 250 children/adolescents with acquired brain injury and/or requiring physical rehabilitation annually. An individualised program is designed by a fully integrated multidisciplinary team for each child to achieve specific goals in areas such as mobility, self care, communication and reintegration to an educational setting. The commitment of this individualised program is for the duration of their formal education up to their transition into tertiary education. The multidisciplinary team includes specialists

in the disciplines of paediatrics, nursing, physiotherapy, occupational therapy, clinical psychology, neuropsychology, social work, speech pathology and education. The model and approach of the VPRS with regard to education being a prime focus of the rehabilitation process has created a culture where education is valued and an expected part of holistic rehabilitation for these children and young people. The role of the teacher in this service is to facilitate communication and planning to ensure a positive reintegration of the child/adolescent to their school community. Thus making connection with the young persons' school and their schools commitment to assisting with their transition is vitally important in this process. Additionally, the RCH Education Institute supports the learning of adolescents and young adults involved with the *onTrac@PeterMac* program through the provision of a part-time education and vocation teacher. This teacher develops partnerships with education providers, employers and community organisations to ensure that learning opportunities continue for the 16-25 year olds treated at the Peter MacCallum Cancer Centre.

The nature and quality of the teaching activities undertaken by the Education Institute is documented through daily entry of data by the teachers into an electronic database. This database includes information about the children and young people who have been supported, the type of support provided and an indication of whether teachers consider that a referral is needed for additional support. Such data provides the Education Institute with an ongoing, up-to-date account of all children in the RCH who have received direct educational support and what this support has entailed. It therefore allows for reporting and accountability and continuity of care and support for children and young people who have long-term and/or frequent admissions to the hospital over time.

The provision of education support within a health care environment presents unique challenges and opportunities for the RCH teachers above and beyond their pre-service teacher training. While teacher training traditionally has concentrated on working with groups of children at either primary or secondary levels, within the context of their work with the RCH Education Institute, teachers are required to reflect upon their own pedagogical practices and approaches and adapt these to a vastly different environment; in particular the teachers must be flexible and able to teach children from pre-school to post-compulsory schooling ages. The RCH Education Institute teachers are also required to develop some understanding of clinical health issues related to the diagnoses, prognoses, treatment and management of a range of health conditions in order to most appropriately assist children and young people with their ongoing engagement in education. The challenges associated with this hospital-specific knowledge which includes elements of both professional and personal development for teachers have been previously noted:

> *"We've got to learn our lessons about having some teething time for the* [teachers] *to be in this environment. If you've not been a teacher in this sort of setting before...you'll flounder. It's such an eye opener to walk in the ward... they [young person] weren't sick yesterday but they are today. Preparing the staff for that sort of culture shock when they first arrive and supporting them through that is really important."* (Meade, et al., 2010, p.38).

> *"It was a steep learning curve for me, with the health conditions ... I don't want to pull a face or be horrified or anything by some of the health conditions but the students just talk! Kids blurt out what's wrong with them so I just try and make it normal."* (Nisselle, Green and Scrimshaw, 2011, p.107-108).

Much of this hospital-specific knowledge is gleaned from mentoring provided by the existing RCH teachers and from experiences and discussions held both on and off the wards with other teachers and health professionals as part of multidisciplinary team meetings. An important aspect of teaching within this environment is that RCH Education Institute teachers need to reflect upon, document and share their teaching practices and learning outcomes with each other. Regular small team, and larger whole-group meetings and forums are held to encourage this practice. As two graduate teachers have noted:

> *"My graduate year at the Royal Children's Hospital Education Institute has been a big learning journey. I have learnt a lot about myself as a teacher and the environment in which I work. I have learnt to be flexible, to use technology to engage students in their learning and to construct meaning from all actions."*

> *"Being a graduate teacher at the RCH Education Institute has encouraged me to be flexible and to adjust to new environments and different situations quite easily. By working in collaboration with other teachers, parents, schools and multidisciplinary teams I am becoming a more confident and creative teacher adapting to each child's learning needs. I look forward to strengthening these relationships, continuing to work with children of all ages and moving forward into team teaching and planning across different wards of the hospital."*

As occurs within schools, the RCH Education Institute teachers are also provided opportunities to attend seminars, presentations, conferences, etc as well as undergo both individualised and group professional development activities in order to maintain the currency of their knowledge and to allow new and innovative ideas to be considered within the context of the RCH. The RCH Education Institute is also prolific in providing placement opportunities for pre-service and graduate-level student teachers. These placements offer great learning opportunities for both the student teachers in regard to teaching and learning in an out-of-school setting, and also provide the existing RCH Education Institute staff with opportunities for mentoring and gleaning new and fresh ideas from the student teachers. During the year 2010-2011, a total of 240 days of student teacher placements were undertaken within the RCH Education Institute.

The idea of youth 'voice' and its importance in creating an inclusive environment is also displayed through the RCH Education Institute partnering with the Centre for Adolescent Health to develop a young advisory council at the hospital. This council is known as *Youth at the Kids* (Y@K) and is comprised of members aged 12 to 20 years who work towards injecting youth consumer voice into discussions and decisions that affect young people's hospital experience. As the terms of reference states:

> *We are a group of young people with a voice who are involved in the hospital. Y@K works with the RCH Executive, patients and other advisory councils. We are passionate about putting young people's needs at the forefront. We strive to represent young people and their ideas for the present and future. We are committed to improving hospital life in concordance with young people and their feedback.*

In 2010-11, Y@K members had involvement in major decisions including design elements of the new RCH, the development of information brochures and a website, input into the RCH response to youth rights and supporting a Youth Forum which attracted over 150 young people to contribute ideas to make the RCH a more child and youth friendly hospital. Young people who join Y@K have the opportunity to gain skills in public speaking, events management, website design and leadership.

IMPACT AND EFFECTIVENESS

Evaluating the impact of educational interventions for a complex cohort of students such as those involved in the Royal Children Hospital is extraordinarily difficult. The transitory nature of most students, who are engaged with the Education Institute for only short periods of time, and the paucity of documentation available to teachers to enable them to identify children's learning needs combine to make the development of a standard assessment tool somewhat irrelevant. Instead, the impact and effectiveness of particular educational interventions are measured based upon children remaining engaged or re-engaging in their education despite their health condition rather than based upon students achieving certain levels on assessments or minimising absentee days, etc. Thus, measurement of engagement for RCH Education Institute teachers is based upon proxy measures such as time on task, self-management, willingness/excitement to be involved, improved quality of teacher-child interactions and increased levels of student interpersonal competencies and team work (DEECD, 2011c). For example:

> *"During these sessions,* [his] *love for learning is apparent, his face lighting up when he sees someone coming to work with him."*

For priority patients, documentation of the learning journey while in hospital is provided to the child, their family and their school. The impact of such support for one particular young person has enabled her to remain engaged in her education, complete her VCE and successfully enrol in the tertiary sector to continue her education when she is well enough:

> *"When I first came back to the Royal Children's Hospital I had really bad anxiety about school but then the teachers from the Education Institute helped relieve that. Since then they have spent a lot of time communicating with my teachers as it's sometimes difficult for me to gather all of the information into one place. I was unable to complete any of my Year 12 exams so the teachers assisted my school in applying for a DES (Derived Exam Score) of which has been approved. This means that the school submits a score based on the work that I have completed ... Since my relapse I have had some really difficult times but it's nice to know that I don't need to worry too much about my schooling as the teachers are here to help me."*

The benefit of the education support available to children in this setting is also apparent from this comment made by a parent:

> *"When first arriving at the Royal Children's Hospital we weren't concerned about the school work* [child's name] *would be missing but as time passed and we began to think more and more about how hard it would be for* [child's name] *when he returned to school. ... There have been really hard times over the past 7 months ... I am glad we weren't the ones who needed to worry about ... schooling as we had plenty of other issues to deal with,* [his RCH Education Institute] *teacher has definitely made our time here a more pleasant one, not only does she help* [him] *further his studies and stay positive, but she has been there for our whole family supporting us through horrible times by lending an ear and a shoulder to cry on ..."*

Growing the evidence-base at the RCH Education Institute

One of the unique aspects of the RCH Education Institute is that it develops and manages a portfolio of research projects alongside its education support model (see www.rch.org.au/education/research for more detail). The aim of this approach is to generate and disseminate a knowledge base to inform practice, programs and policy in the education and health sectors. Research undertaken within the Education Institute encompasses five major themes as depicted in Table 4.

Table 4: Overview of RCH Education Institute research themes

Research theme	Overview of research theme
Learning spaces	Investigates what built environments are the most conducive to continued learning for children and young people removed from their own learning community through hospitalisation
Technologies for learning	Focuses on investigating the use of different technologies for keeping young people engaged with learning and connected with their peers and school communities while in hospital.
Health and wellbeing	Considers the physical, social and emotional wellbeing of children and young people in a variety of different health and education contexts
Inclusion and connections	Focuses on investigating the experiences of children and young people who are living with health conditions and developing respectful and supportive responses to assist them stay engaged in their learning pathways
Children and communities	Explores more effective approaches to developing partnerships with parents to promote children's healthy development and also communication across education and home settings

More detail on the research theme 'Inclusion and connections' and the impact of research in these them on the teaching and learning at the RCH is provided below.

Inclusion and connection

The importance of inclusion and connection is apparent in many of the processes and approaches of the RCH Education Institute. This is demonstrated by the project topics chosen and the availability of teachers in areas of high need such as the RCH Immigrant Health Service and the *Wadja* Health Clinic for Aboriginal and Torres Strait Islander children. RCH Education Institute teachers and ESOs often use art as a means to engage and connect young people during their hospital stays. The arts are used as they can connect people socially, historically and culturally which is especially important when supporting children and young people from a variety of backgrounds and experiences of learning. The arts in this setting include digital-based music technologies, storytelling, illustration and hand-on character and scenery modelling. As one RCH teacher reports:

> *"Through their art they have a voice; they are able to use a different language to say what they think and feel"* (RCH Education Institute, 2011c).

Communication between young people, the hospital, the school and the home environment is used by the RCH Education Institute as a means of maintaining inclusion and connections, both socially and academically, for children with health conditions. The RCH Education Institute teachers provide a vital liaison point between these social worlds for children attending the hospital. The work the teachers perform, particularly in ensuring that set work can be obtained from a student's school during long admissions, helps children feel that they're still part of the school community during their period of hospitalisation. This is important as research shows that children dealing with a chronic illness want to maintain as normal a life as possible (Yates et al., 2010). A current research project being undertaken by the RCH Education Institute is focussed upon creating a whole-of-hospital-approach to children's learning and education and therefore their inclusion and connection. This project, known as 'Children's Learning at the Royal Children's Hospital' is being undertaken to identify:

1. How best to strengthen the capacity of the RCH to create and promote dynamic and flexible learning environments for children
2. The processes and spaces across the RCH with the potential to promote children's learning (e.g. through e-learning strategies)
3. The potential for learning at the RCH through partnerships such as with cultural and/or arts institutions
4. How to promote engagement and a deeper understanding of children's learning within the health disciplines at the RCH
5. Opportunities that foster shared experiences of learning between children and their parents and promote the educative role of parents during their child's admission at the RCH.

This will result in the development of a framework (including a set of principles and a process) for a sustainable, whole-of-hospital approach to children's learning for the RCH. A large component of this project involves consideration of the connections needed between the home, hospital and school environments. The RCH Education Institute teachers, along with parents, connect with schools to discuss issues of class work, transition and other assistance as well as with regional representatives as appropriate for each young person. Teachers also work to support the young people themselves in establishing or maintaining connections with their school, classes, families and friends, through the use of telephone, email, face-to-face interactions, written information and social networking opportunities. The project 'Overcoming a child's absence from school through ambient orb technology' is a good example of research conducted by the RCH Education Institute to improve children's connection with their school environment. In that study the RCH Education Institute in collaboration with the Department of Information Systems at The University of Melbourne (funded by the Institute for a Broadband-Enabled Society at The University of Melbourne) developed a broadband- based ambient orb (a globe-shaped device which changes colour in response to input through a specially-designed software program [see Figure 4]) and tested the orb as a feasible means to mediate social presence for children absent from their classroom.

Figure 4: The ambient orb a) as controlled by the child in hospital and b) in the classroom

The results indicated that the ambient orb technology had an overall positive impact on the hospitalised child and their classmates. The orb was instrumental in raising the awareness of the hospitalised child for the class teacher and classmates and the hospitalised children benefited from imagining that their peers and school community were thinking of them (Green, Vetere, Nisselle, Dang and Zazryn, accepted for publication). Future research for this project is focusing on the use of ambient technology across the hospital, home and school.

One important aspect to maintaining connection and inclusion for hospitalised children is through the young people receiving recognition of the work they complete while within the hospital towards requirements and assessments for their formal schooling. This also assists young people to continue on their educational pathways. For example, the RCH Education Institute teachers have assisted a number of students with completing examination tasks for their secondary school certificates by connecting with the school and the examining body to consider flexibility in terms of the timing, duration and specific activities that could be completed in order to successfully complete assessment tasks. At least two students in the last twelve months have been supported to complete assessments to meet their secondary school certificate requirements through written or oral presentations relating to their health conditions and health journeys. Additionally, the RCH Education Institute has organised for the siblings of patients from the hospital to be enrolled in a local primary school on numerous occasions, particularly those from regional Victoria or interstate:

> "The staff and school community at Errol Street believe it is a privilege to be involved in a sibling partnership program with the RCH. The reciprocal learning that takes place as our students learn about the unwell siblings and 'happenings' at the RCH is incredibly valuable." (Principal, North Melbourne Primary School, RCH Education Institute, 2011c)

Connection of children and young people within the hospital community is also important for minimising social isolation and exclusion. During 2011, the RCH Education Institute has undertaken an arts project to help patients, families, visitors and staff farewell the current hospital, transition to the new RCH, and, reflect upon the significant role the hospital has played

in their lives. This arts project was a Community Weave. All community members were asked to contribute materials to the weave that reflected who they are and their memories/experiences of the hospital (for example, medical tubes, buttons, threads from scrubs or gowns, friendship bracelets, lanyards, pieces of get well cards, dried flowers, etc) (see Figure 5). People contributing to the weave were also asked to fill in an official weave guestbook which has been kept as a log to highlight the stories of people who contributed to the weave during this important time in RCH history. An artist in residence assisted with this project. This weave will be displayed in a prominent place within the new RCH premises from November 2011.

Figure 5: The Community Weave in a) Week 1 and b) Week 5

CONCLUSION

The RCH while not designed for education purposes is an innovative learning space. The theoretically underpinned, evidence-based approach to learning by the RCH Education Institute assists children and young people with health conditions to remain connected both socially and educationally to their schools, peers and families while in the hospital. The unique approach of the RCH Education Institute in providing education support within a hospital setting is premised on the idea that learning can and will occur anywhere and that children are naturally interested and curious learners. The hospital setting is thought to be an environment in which deep learning can be facilitated when the right opportunities are provided for this purpose.

References

Bronfenbrenner U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press

Bruner J. (1960). *The process of education*. Cambridge, MA: Harvard University Press.

Comber B, & Kamler B. (2004). Getting out of deficit: Pedagogies of reconnection. *Teaching Education, 15*(3):293-310.

Comber B, Nixon H, & Reid J. (2007). *Environmental communications: Literacies in place: Teaching environmental communications.* Marrickville, N.S.W.: Primary English Teaching Association.

Department of Education and Early Childhood Development [DEECD]. (2008). *Principles of learning and teaching.* Available from www.education.vic.gov.au/studentlearning/teachingprinciples/default.htm

DEECD. (2009a). *Effective schools are engaging schools. Student engagement policy guidelines: Promoting student engagement, attendance and positive behaviours in Victorian government schools*. Available from www.eduweb.vic.gov.au/edulibrary/public/stuman/wellbeing/segpolicy.pdf

DEECD. (2009b). *e5 instructional model*. Available at www.education.vic.gov.au/edulibrary/public/teachlearn/innovation/e5/E5_A1PosterTable4.pdf

DEECD. (2011a). *iPads for education*. Available at http://www.ipadsforeducation.vic.edu.au/

DEECD. (2011b). *Ultranet*. Available at http://www.education.vic.gov.au/about/directions/ultranet/whatis.htm

DEECD. (2011c). *Research into the connection between built learning spaces and student outcomes.* Australia: Education Policy and Research Division, DEECD.

Dewey J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. Boston, MA: DC Health and Company.

Fleer M, & Raban B. (2005). Literacy and Numeracy that counts from birth to five years: a review of the literature. Melbourne: DEST early childhood learning resources.

Green J, Vetere F, Nisselle A, Dang XT, & Zazryn T. (accepted for publication). Inclusion during school absence: Using ambient technology to create a classroom presence for hospitalized children. *Interacting with computers*.

Haas S, & Fosse N. (2008). Health and the educational attainment of adolescents: Evidence from the NLSY97. *Journal of Health and Social Behaviour*, *49*:78-192.

Kalantzis M, Cope B, & Cloonan A. (2010). A multiliteracies perspective on the new literacies. In E. Baker (Ed.), *The new literacies : multiple perspectives on research and practice* (pp. 61-87). New York: The Guildford Press.

Keating D, & Hertzman C. (1999). *Developmental health and the wealth of nations*. New York, NY: The Guilford Press.

Lombardi, MM. (2007). Authentic learning for the 21st Century: An overview. Available from http://net.educause.edu/ir/library/pdf/ELI3009.pdf

Meade R, Green J, Burns H, Dullard R, & Houlihan J. (2010). *The 3 East education project. Learning anytime, anywhere: The creation of a learning community on the adolescent ward at The Royal Children Hospital, Melbourne. Final report.* Melbourne, VIC: The Royal Children's Hospital Education Institute.

Nisselle A, Green J, & Scrimshaw, C. (2011). Transforming children's health spaces into learning places. *Health Education, 111*(2), 103-116.

Nisselle A, Hanns S, Green J, & Jones A. (Accepted for publication). Accessing flexible learning opportunities: children and young people's use of laptops in a paediatric hospital. Technology, Pedagogy and Education.

Orr, D. (2010). Forward. In *The third teacher: 79 ways you can use design to transform teaching and learning* (p. 14-15). United States of America: Abrams.

RCH Education Institute. (2010). *RCH Education Institute Annual Report 2010: Creating innovative learning opportunities for children and young people at The Royal Children's Hospital.* Available from http://www.rch.org.au/education/about.cfm?doc_id=14338

RCH Education Institute. (2011a). *About the Education Institute*. Education Institute. Available from http://www.rch.org.au/education/about.cfm?doc_id=14328

RCH Education Institute. (2011b). *Research*. Education Institute. Available from http://www.rch.org.au/education/research.cfm?doc_id=12784

RCH Education Institute. (2011c). *The Royal Children's Hospital Education Institute Annual Report 2011.* Available from http://www.rch.org.au/education/about.cfm?doc_id=14338

Shankar S, Robison L, Jenney MEM, Rockwood TH, Wu E, Feusner J, Friedman D, Kane RL, & Bhatia S. (2005). Health-related quality of life in young survivors of childhood cancer using the Minneapolis-Manchester Quality of Life-Youth Form. *Pediatrics, 115*:435-442.

Stanway, J. (2010). A word from the Chair. In *RCH Education Institute Annual Report 2010: Creating innovative learning opportunities for children and young people at The Royal Children's Hospital.* Available from http://www.rch.org.au/education/about.cfm?doc_id=14338

State Government of Victoria. (nd). The new Royal Children's Hospital Project. *About the new RCH*. Retrieved March 8, 2011, from http://www.newrch.vic.gov.au/AboutthenewRCH#

The Royal Children's Hospital [RCH]. (2011a). RCH Intranet. *About the Royal Children's Hospital.* Retrieved March 8, 2011, from http://www.rch.org.au/rch/about/index_int.cfm?doc_id=335

The RCH. (2011b). RCH Strategic Plan 2010-13. Retrieved March 17, 2011, from http://www.rch.org.au/emplibrary/strategic_plan/Strategic_Plan_A4.pdf

Vygotsky L. (1978). *Mind in society: The development of higher psychological processes.* Harvard, MA: Harvard University Press.

Wilks, S. (2010). A Charter for Children's Learning at The Royal Children's Hospital: Literature Review. Retrieved March 23, 2011, from http://www.rch.org.au/emplibrary/edinst/3EastEducationProject_FinalReport_May10_ImageReduced.pdf

Yates L, Bond L, Dixon M, Drew S, Ferguson P, Hay T, et al. (2010). *Keeping connected: Identity, social connection and education for young people living with chronic illness*. Melbourne, VIC: Melbourne Graduate School of Education, The University of Melbourne.

Yelland, N. (2011). Reconceptualising play and learning in the lives of young children. *Australian Journal of Early Childhood, 36*(2):4-12.