CREATING A CLASSROOM PRESENCE FOR HOSPITALISED CHILDREN

Xuan Thu Dang\textsuperscript{a}, Dr Julie Green\textsuperscript{a,b,c}, Dr Frank Vetere\textsuperscript{d}, Dr Amy Nisselle\textsuperscript{a,b,e}, Dr Tsharni Zazryn\textsuperscript{a,b}, Paul Peng Deng\textsuperscript{d}

a Royal Children’s Hospital Education Institute, Melbourne
b Murdoch Childrens Research Institute, Melbourne
c Department of Paediatrics and Melbourne Graduate School of Education, The University of Melbourne, Melbourne
d Department of Information Systems, The University of Melbourne, Melbourne
e DNA Learning Center, Cold Spring Harbor Laboratory, New York, USA
Outline

• Background
• Ambient technology
• Research aim
• Orb prototype
• Methods
• Results: Presence + Awareness + Connectedness
• Conclusions
Background

• ~10,700 school-aged children (6–18 years) admitted annually to RCH

• Significant barriers for continuity of education
  • risk of disengagement from school
  • academic failure
  • compromised social wellbeing

• ‘Out of sight, out of mind’
Broadband-enabled technologies may help connect children with school and peers and contribute to a culture of learning.
Ambient technology

• Peripheral to attention
• Conveys non-critical information
• Responds in subtle, non-intrusive ways
• Presents an idea without disturbing or distracting user
• Embodies ambient presence (Dey & Guzman 2006) and phatic interaction (Vetere et al 2009)
Research aim

• To trial creating a presence for hospitalised children in their classrooms using ambient technology
Orb prototype
In the hospital
In the classroom
Orb prototype

Web app

National Broadband Network

Presence

Hospital room

Orb server

Classroom
## Methods: Case study data collection

<table>
<thead>
<tr>
<th>Hospital</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child</strong></td>
<td><strong>Teacher</strong></td>
</tr>
<tr>
<td><strong>RCH teacher</strong></td>
<td><strong>Classmates</strong></td>
</tr>
<tr>
<td><strong>Parents</strong></td>
<td><strong>Interview</strong></td>
</tr>
</tbody>
</table>

**Before**
- Interview
- Interview
- Interview
- Phone interview
- -

**During**
- 2–3 teaching session observations
- Log data
- 2–3 classroom observations
- -

**After**
- Interview
- Interview
- Interview
- Phone interview
- Class discussion
In the classroom
## Results: Case studies

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Type of admission</th>
<th>Home location</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerry (F)</td>
<td>9</td>
<td>2 weeks, 3-4x year</td>
<td>Melbourne</td>
<td>Grade 3, govt</td>
</tr>
<tr>
<td>Lucy</td>
<td>11</td>
<td>Long term (11 months)</td>
<td>Remote Victoria</td>
<td>Grade 5-6, govt</td>
</tr>
<tr>
<td>Sarah</td>
<td>10</td>
<td>Long term (3 months)</td>
<td>Melbourne</td>
<td>Grade 5, govt</td>
</tr>
<tr>
<td>Felix</td>
<td>10</td>
<td>1 day every week</td>
<td>Regional Victoria</td>
<td>Grade 5-6, govt</td>
</tr>
</tbody>
</table>
Orb Project in the Media
Results

PRESENCE

CONNECTEDNESS

AWARENESS
Presence
Presence

• The child in hospital

“I reckon it was good... because some of my friends said when it changed colours it reminded them of me and I liked it ‘cause everyone would think of me.”

Lucy, post-interview
Presence

• The child in hospital

“I think it [the orb] is a smart idea because it’s like I’m IN school when I’m not AT school, and they can know I’m thinking of them, and they can think of me. And that’s good. It’s a good idea.”

Felix, pre-interview
Presence

• The class teacher

“It gave me a sense that Felix was around... Other days when Felix is away, I know he’s away, and I mark the roll, and that’s it. But with the orb in the classroom, and the change of the colour, it just has that more presence about it... I thought it was pretty exciting to sort of have that link between the hospital and the classroom... Some of the kids were pretty keen on knowing what Felix was doing [in hospital].”

Felix’s teacher, post-interview
Presence

• Classmates

Classmate 1: It’s cool how it [orb] lights up and stuff and you know that Jerry’s there.

Jerry’s classmates, post-class discussion
Presence

• Classmates

Classmate 3: It feels like Jerry’s in the classroom.

Classmate 4: Well, she’s just sitting there! [points at orb]

Classmate 5: If you didn’t have this [orb] you wouldn’t be thinking of Jerry that much.

Jerry’s classmates, post-class discussion
Presence

Classmates & teacher

**Teacher** Oh, did you...[name] just noticed something. It’s going pink on top. What does that mean?

**Classmate** Sarah’s in the classroom.

**Teacher** Fantastic. Sarah’s in the classroom and she is... letting us...

**Classmates** Know!

**Teacher** ...yes, she is letting us know...

Sarah’s class audio
Awareness
Awareness

• “I think [the orb] made them aware ... that she’s still part of the class ... They were aware of her and aware of her situation and I think that helped her coming back [to school], in my opinion anyway. But they all thought it was fantastic and it was great.”

Lucy’s mother, post-interview
Awareness

Classmate: I know what all the colours mean!
Teacher: … Alright. So when she does the rainbow effect, what does that mean?
Classmate: She’s happy.
Teacher: You know when she did it, there was a bit of yellow and a bit of orange....

Classmates: [lots of comments in background each reply]

Classmate: Now she’s sad! ......

Classmate: It’s green!

Classmate: It looks like she’s happy. She doesn’t [have to] finish her homework.

Sarah’s class audio
Connectedness
Connectededness: ‘a feeling of staying in touch’

“I’d be pretty lonely, so I’d want to do this [changing orb colour] to connect with school. I think I’d like to have it [orb] just to connect with the classroom ‘cause you could get a bit lonely there.”

Lucy’s classmate, post-class discussion
Connectedness

Researcher: Why do you reckon she might turn it on?
Classmate: To show that she shared something.
Classmate: To show that she’s in the computer.
Classmate: To talk to us?
Classmate: Trying to communicate.

Sarah’s classmates, post-class discussion
Connectedness

Researcher  What do you think she’s trying to communicate?
Classmate  Asking how we’re doing, she’s doing fine.

Researcher  Anything else? Any other reasons why you think she might turn it on?
Classmate  To know that she’s there.

Sarah’s classmates, post-class discussion
Conclusions

**Hospitalised children**: strong desire for their classmates to be aware of their virtual presence
Conclusions

Ambient technology: highly effective in prompting ‘sense of being together’
Conclusions

Ambient technology: a feasible means to mediate classroom presence for hospitalised children
Conclusions

Next steps: School ↔ Hospital ↔ Home connections
New RCH

http://www.flickr.com/photos/28286225@N02/6640509479/

ICTEV - 26 May, 2012
Acknowledgements

• Jerry, Sarah, Lucy, Felix, their parents, teachers & schools
• IBES seed funding
• Department of Education & Early Childhood Development
• NH&MRC Health Professional Fellowship (J. Green)
Q & A

Your questions or comments are much appreciated!
Contact:
Thu Dang, Research Assistant
RCH Education Institute
159 Flemington Road, North Melbourne, VIC 3051
thu.dang@rch.org.au
References


New RCH