Advancing the use of Digital Game-Play in Primary and Secondary School Classrooms to Establish Supportive and Engaging Classroom Learning Environments


A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy

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Date of Submission: 22 January 2016
Abstract

Digital games have been used sporadically in classrooms since the 1970s, but their adoption rate continues to be low. Researchers have identified a number of benefits of using digital games in the curriculum including deep engagement, improving social skills, and offering opportunities for higher order thinking. However, there are significant barriers to their use in classrooms such as access to appropriate hardware and software, teacher’s knowledge of games and how to effectively use them in a classroom environment, negative societal attitudes towards digital games, and difficulties matching digital games to curricula. Many of the digital games created for classroom use are short form drill-and-practice games that focus on learning through repetition and only offer lower levels of learning. These games are not the type of games students would choose to play at home and may fail to meet learner expectations. Gradually, more complex digital learning games are being created by game designers. However, designers are still learning the best ways to make the most of the affordances offered by the classroom environment. This thesis offers new insights into the experiences of teachers who choose to use digital games in their classrooms and makes recommendations on the design of digital learning games.

Section A of the thesis introduces the topic of study, explains how the research was conducted, then outlines why this research is needed.

Section B presents four academic papers relating to Study 1 that explore the experiences of teachers who choose to use digital games in their classrooms. The first paper explains that some educators are overwhelmingly positive about using digital games in their classrooms. These educators were labelled *believers*. It then describes the range of personal and professional factors that lead to the process of an educator *becoming a believer*. Paper 2 explains that due to their use of digital games in the curriculum, some teachers feel alienated from teaching colleagues in their school. It also explores the process that precedes these feelings of alienation. Paper 3 presents the Mentoring Model to Assist Cohorts of Teachers to Use Digital Games in their Classrooms which features *collegial planning* and staggered implementation of using
digital games in classrooms. Most importantly, using this Model makes teaching colleagues more open to the use of digital games in their classrooms. Paper 4 introduces the Game Uses Model for Classrooms which is a planning tool to help teachers richly and elaborately intertwine games into their curriculum.

Section C presents three academic papers that relate to Study 2: the design of Orbit, a child sexual abuse prevention digital game for classrooms. Paper 5 explores the key considerations for effective school-based child sexual abuse prevention programs which are incorporated into Paper 6 and Paper 7. Paper 6 explores the attributes of effective school-based child sexual abuse programs and begins discussions on how these can be suitably implemented in a digital game. Paper 7 explores key design decisions in the development of Orbit and draws conclusions about how digital learning games can be designed to help establish supportive and engaging classroom learning environments.

Section D collates the findings from Study 1 and Study 2. It concludes that, if digital games are to take their place alongside other technology-mediated learning environments, bottom-up and top-down approaches such as those described in this thesis are required to redress the stigma associated with using digital games in the classroom. Further, it provides guidance for how digital game designers can create complex digital games that capitalise on the affordances offered by the classroom environment.

Study 1 was informed by an Interpretivism epistemology underpinned by the Social Constructivist theoretical perspective which deems that meaning is created through interacting with people as well the environment. This research aimed to build shared understandings between the researcher and the participants with the goal being transferability, where these shared understandings can be applied to other situations in context-sensitive ways. Grounded theory methodology was used to discover insights into educators’ experiences. The main data used in this study were in-depth, semi-structured interviews which ranged from one to two hours in duration and were conducted with 13 (8 female, 5 male) educators who have used digital game-play in the
classroom. All participants interviewed had worked within the educational system of Queensland, Australia.

Study 2 combined practice-led research with research-led practice methodologies to design a creative work, recognising that creative works can be a form of research as can the documentation, theorisation, and generalisation of these works. Practice-led research and research-led practice can be used collaboratively, iteratively, cyclically, and in a manner that has web-like properties. During the process sub-cycles repeat, possibly with variation (iterative); research-led practice alternates with practice-led research (cyclic); and there are numerous entrance and exit points as well as cross-referencing (web-like and collaborative). This research switched flexibly and fluidly between using practice-led research and research-led practice to design and produce Orbit, a free-to-play child sexual abuse prevention computer game for 8-10 year olds.

This thesis identifies that although researchers and many schooling systems recognise the value of using digital games for student learning, this understanding has not filtered through to the majority of teachers. Therefore, innovation with using digital games in the classroom is reliant on a few believer teachers, many of whom experience alienation from nearby colleagues because of their work. If digital games are to take their place alongside other technology-mediated learning environments in the educational setting, then the stigma of using immersive digital games in the curriculum needs to be redressed. Without mainstream teachers’ involvement and buy-in, the potential of digital games to build supportive and engaging classroom learning environments will never be realised. We recommend: instituting mentoring programs that combine a bottom-up and top-down approach; providing information to teachers about the value digital games offer curriculum beyond learning of content with a focus on establishing a supportive and engaging learning environment; and the design and development of more digital learning games created specifically for classroom use.
Declaration of Originality

This work has not previously been submitted for a degree or diploma in any university. This thesis does not contain any material published or written by another person except where due reference is made.

This thesis contains eight publications that have been published or submitted to be published in peer-reviewed publications. All of these works have co-authors. This thesis also refers to the development of a digital creative work, *Orbit*, and its surrounding artefacts. These also have co-authors. The contribution Colleen Stieler-Hunt has made to each of the eight publications and the digital creative work and surrounding artefacts is outlined and verified by co-authors.

### Papers 1 – 4


Colleen Stieler-Hunt recruited participants, collected the data, analysed the data, and authored 100% of the research papers with editorial support from her PhD supervisor Dr Christian Jones.

Signed: _________________________________  Date: 5/01/2016

Christian Jones

Signed: _________________________________  Date: 5/01/2016

Colleen Stieler-Hunt
Papers 5 – 6

Colleen Stieler-Hunt authored 30% of the literature reviews for the “computer games for learning” working group report and the key messages of prominent child sexual abuse (CSA) prevention programs. She made recommendations for the implementation of Orbit based on these literature reviews, and provided justifications for these recommendations. These literature reviews provided the basis for Paper 5 and Paper 6. Colleen was responsible for authoring 30% of Paper 5 and 35% of Paper 6. Specifically, in Paper 5 she contributed to building the key messages table that was based on the earlier literature review, she helped identify the problematics associated with the key messages, and assisted with the development of the General Overview of CSA Prevention Programs table. In Paper 6 she contributed to explaining how digital games could provide effective CSA prevention by mapping how Orbit was designed to meet the qualities of effective prevention programs and prevention key messages. She also helped develop the list of key considerations for a game-based approach to CSA prevention. Within Paper 6 she also contributed to the literature review around Serious Games.

Signed: _________________________________  Date: 7/01/2016
Laura Scholes

Signed: _________________________________  Date: 5/01/2016
Christian Jones

Signed: _________________________________  Date: 6/01/2016
Kay Pozzebon

Signed: _________________________________  Date: 5/01/2016
Ben Rolfe

Signed: _________________________________  Date: 5/01/2016
Colleen Stieler-Hunt
Colleen Stieler-Hunt authored 100% of this research paper with editorial support from her PhD supervisor Dr Christian Jones. The paper was based on previous work that had input from Dr Christian Jones, Ben Rolfe and Dr Kay Pozzebon.
Orbit Computer Game
Queensland, Australia: University of the Sunshine Coast.

Colleen Stieler-Hunt was instrumental in the design of Orbit, a child sexual abuse prevention computer game. She led the development of the Orbit learning objectives by applying the knowledge gained from extensive literature reviews of computer games and child sexual abuse prevention initiatives alongside advice from subject matter experts. Bloom’s Taxonomy of Educational Objectives were used to identify the types and levels of knowledge players needed to develop and to make the learning objectives measurable. She assisted with the design of the evaluation study of Orbit which is still ongoing. She designed, conducted and analysed focus groups and user observations which informed the design and development of Orbit. She applied the literature review findings to oversee and assist with writing the content for the teacher lesson plans and the Orbit website.

Colleen co-designed the game with Christian Jones and Ben Rolfe. She coordinated and contributed to design meetings, documented design decisions, consulted subject matter experts on game design issues, liaised with the development team, tested the game, edited elements of the game, prepared builds of the game to distribute to schools, contributed to script writing, and organised recruiting and recording of voice actors.

Designing a game of this size takes much time and commitment from many people. Colleen put more time into the design of Orbit than any other team member. We estimate that she was responsible for 50% of the game’s design and the design of game-related resources.

Signed: _________________________________  Date: 5/01/2016
Christian Jones

Signed: _________________________________  Date: 5/01/2016
Colleen Stieler-Hunt

Signed: _________________________________  Date: 5/01/2016
Ben Rolfe
Paper appearing in Appendix 2.

This paper was written as part of an Australian Research Council grant that involved a large number of researchers and multiple sites. Colleen Stieler-Hunt was a research assistant on this project. She collected data at one site, participated in researcher meetings to discuss the research project, and helped with proofreading the final draft. The paper is included in the thesis appendix and is referenced in the conclusions chapter.

Signed: _________________________________  Date: 5 January 2016
Catherine Beavis

Signed: _________________________________  Date: 5/01/2016
Colleen Stieler-Hunt
Acknowledgements

I wish to thank the educators who participated in my first study. As someone who has enjoyed working in education for twenty years I was inspired and often in awe of the innovative and inventive work my participants were doing and not always in easy circumstances.

Thank you to the Queensland Department of Education and Training and the Queensland Catholic Education Commission for allowing us to conduct research with teachers and students in your schools.

I also wish to thank all of the people and organisations that supported the development and testing of Orbit. This includes the Telstra Foundation, the Daniel Morcombe Foundation, the Queensland Police Service, the Sunshine Cooloola Services Against Sexual Violence Inc, Siena Catholic Primary School, and Chancellor State College. To all of the people who worked on Orbit, thank you! I’d especially like to thank Christian Jones, Ben Rolfe, Melody Muscat, Gordon Moyes, Milenko Tunjic, Leanne Taylor, Ian and Helen Belcher, Alexandra Sharp, Lisa McLean, Karren Aspinall and Katryna Starks. Our full credit list is here http://orbit.org.au/bts/credits/

I appreciated the encouragement and support of my supervisor, Dr Christian Jones. I have no idea how he manages to fit as many projects and meetings as he does into each day. Thank you for always making time to assist me! I also wish to thank Peter Innes, Jenine Beekhuyzen, Ian White, Kathy Lynch and Uwe Terton for their early guidance and encouragement with my PhD studies.

Thank you also to those who were co-authors on my papers. Thanks to Christian, Ben, Laura Scholes, and Kay Pozzebon. Also thank you to those who I had the pleasure to work with on the Serious Play project, particularly Catherine Beavis, Roberta Thompson and Janine. Thanks also to Thea Vanags for her help with proofreading my thesis.

To my colleagues at the Engage Research Lab at the University of the Sunshine Coast, thank you for your friendship and ongoing support. I’m looking forward to
your thesis submission days! Thank you Ben, Katryna, Janie, Amanda, Jacek & Magda, Adriano, Jacqueline, Paula, Jason & TeAna, Dakoda, and Alayna.

Thank you to University of the Sunshine Coast and the Telstra Foundation for your support of my candidature and granting me a scholarship. Without this assistance I would not be presenting my work.

Last but certainly not least, I’d like to thank my friends and family, especially my wonderful husband, Peter Hunt, who has supported me in this journey. He has been my encourager and my rock. Also thank you to our parents and their partners for their support: Trevor Stieler, Julie Stieler, Roger and Anne Hunt, Rosita Hunt.
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**List of Original Publications**

*Journal articles*


Journal articles under review


Peer-reviewed full conference paper appearing in proceedings


Non-traditional research outputs


Section A.

INTRODUCTION
Research Questions and Research Subject Matter

This research seeks to understand how teachers use digital games in primary and secondary school classrooms, understand the experiences of those teachers, and make recommendations for increasing the positive impacts of digital games in classrooms. The research questions that form the basis of this study are:

**RQ1.** What is impacting the use of digital game-play in primary and secondary school classrooms?

**RQ2.** How can actors in the creation and application of digital games advance the use of digital game-play in the classroom to establish supportive and engaging classroom learning environments?

We define digital game as “any game that uses electronic hardware to deliver some or all of the game. This includes video games played on home and handheld consoles, PC games, web-games, mobile phone games, and games such as alternate reality games that blend the analogue and digital worlds” (Stieler-Hunt & Jones, 2015a, 2015c, 2015d). We define digital game-play as “the act of participating in a digital game” (Stieler-Hunt & Jones, 2015a, 2015c, 2015d).

The “actors in the creation and application of digital games” referred to in RQ2 includes teachers, teacher advisors, school administration teams, schooling systems, digital game designers, and digital game publishers.

Across this thesis we view quality schooling experiences as being more than just test scores and grades, and seek to discover how digital game-play can advance supportive and engaging classroom learning environments.

By *supportive* we mean a classroom learning environment where students perceive that they are “liked, respected, and valued by fellow students and the teacher” (Goodenow, 1993, p. 21). Within this thesis we use Osterman’s (2000) construct, *sense of community* (p. 323) to investigate our findings in terms of their contributions to a supportive learning environment. Osterman (2000) defines sense of community as a “feeling of belongingness within a group” (p. 323). Researchers use different labels such as *belonging* and *relatedness* to describe similar psychological...
relatedness is one of three basic psychological needs essential for humans to grow and
develop. However, some researchers express concerns that schooling practices can
cause students to feel alienated (Earl, Hargreaves, & Ryan, 2013; Osterman, 2000).
Therefore, exploring how digital games can be used to build supportive classroom
learning environments warrants further investigation.

Engagement relates to how students “behave, feel and think” (Fredricks,
engagement as students participating in academic and social school activities;
emotional engagement as relating to rapport between teachers and classmates, and
students’ reactions to academics and school; and cognitive engagement as drawing on
“the idea of investment” (p. 59), where students are willing to make the required
efforts to “comprehend complex ideas and master difficult skills” (p. 59). In this thesis
we use Noddings’ (2002) model of moral education developed through care ethics to
investigate our findings in terms of their contributions to an engaging learning
environment. At its core is the belief that students should be cared for and learn to care
for “self, intimate others, global others, plants, animals, the environment, objects and
instruments, and ideas” (p. 99) and that this kind of education will supply a firm
foundation for both intellectual and academic achievement (Noddings, 2002). We use
this model because deep caring promotes emotional and cognitive engagement and it
can lead to behavioural engagement (Martin, 2007). Further, Noddings’ (2002) model
promotes a holistic view of classroom learning which is consistent with the holistic
view of learning taken in this thesis. Noddings’ (2002) model bears similarities to
character education which dominates moral education practice (Bergman, 2004;
Noddings, 2002), with the main difference being that the Noddings’ (2002) model
advocates for caring to be embedded in everything that is taught rather than in
specialised “social, emotional, and ethical” classes that tend to divorce caring from its
context (Noddings, 2006, p. 238). There are advocates for Noddings’ (2002) model
across different fields of learning (Fien, 2003; Martin, 2007; Rabin, 2009). In Table 1 we
have listed five key tenets of Noddings’ (2002) model of moral education and
explained how they provide behavioural engagement, emotional engagement, and cognitive engagement as outlined by Fredricks et al. (2004).

There is no common definition for the term *learning* provided across the literature (Schunk, 2008). Schunk (2008) provides the following general definition “learning is an enduring change in behaviour, or in the capacity to behave in a given fashion which results from practice or other forms of experience” (p. 3). Within this thesis we use modified *situated cognition theory* to investigate our findings in terms of their contributions to establishing a learning environment. Situated cognition theory proposes that attaining knowledge is dependent on social and physical contexts at the time of learning and therefore it cannot be assumed that conceptual knowledge can be applied to new situations (Brown, Collins, & Duguid, 1989; Greeno, 1989). Critiques of situated cognition theory agree that learning is grounded in the concrete situation in which it is attained, but posit that sometimes knowledge can be applied to new contexts (J. R. Anderson, Reder, & Simon, 1996). Further, researchers have identified four factors that will influence knowledge/skill transference: providing sufficient practice (J. R. Anderson et al., 1996); providing a number of contexts in which the knowledge/skill is learned (Bjork & Richardson-Klavehn, 1989); drawing attention to the cues of where the knowledge/skill is applicable (J. R. Anderson et al., 1996); and using concrete examples to illustrate abstract concepts (J. R. Anderson et al., 1996). We chose situated cognition theory because it has been identified as a useful lens for games research, as the successful player will learn and apply their knowledge within a context that has meaning within the game (Van Eck, 2006). Further, teachers can augment the game with instruction that brings the game’s context into the classroom environment to extend the learnings (Van Eck, 2006).

In this thesis we define *classroom learning environments* as the “physical locations in which a group of students learn together under the guidance of a teacher”. This may include indoor and outdoor locations. We are not saying that these are the only locations and conditions under which learning can occur, just that these locations are the most commonly discussed in our research.
Table 1. 

<table>
<thead>
<tr>
<th>Model of moral education key tenets</th>
<th>Behavioural</th>
<th>Emotional</th>
<th>Cognitive</th>
</tr>
</thead>
</table>
| **1) Shared meaning:**   
  Education should be based on construction of shared meanings not just on processing of information. | Building shared meanings requires learners to actively participate in constructing meaning from the topic. | Building shared meanings requires learners to co-construct meanings with fellow learners. | Building shared meanings requires learners to invest themselves in the construction of knowledge. |
| **2) Exploring own interests and capacities:**   
  Students can learn to care by being permitted to explore their own interests and capacities, without coercion to study areas they do not care about. | Providing opportunities for learners to explore their own interests and capacities involves learners in making meaningful choices associated with their learning. | Providing opportunities for learners to explore their own interests and capacities means that learners are more likely to have positive responses to the areas of study they choose to pursue. | Providing opportunities for learners to explore their own interests and capacities invests learners in the chosen area of study from the beginning. |
<p>| <strong>3) Key components: modelling, dialogue, and practice</strong> | Dialogue and practice provide opportunities for learners to participate in meaningful conversations about their learning and practice their learnings. | Modelling and dialogue provide opportunities for the learner to interact with other class members and the teacher. Practice allows learners to develop positive responses to the application of their learnings. | Modelling, dialogue, and practice scaffolds the learner as they build their skills and knowledge in an area of study that they are invested in because they already have an interest and capacity in it. |
| <strong>4) Stories can provide starting points for dialogue</strong> | Stories provide a context for dialogue which provide opportunities for learners to participate in meaningful conversations about their learnings. | Stories provide context for the area of study and can help the learner further develop their understandings of the area. As the learner’s understanding develops, their receptiveness towards the area of study will increase. | Stories provide context for meaningful dialogue. Participating in meaningful dialogue increases the learner’s investment in the area of study. |</p>
<table>
<thead>
<tr>
<th>Model of moral education key tenets</th>
<th>Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>5) <strong>Engrossment and motivational shift:</strong> Engrossment indicates that the learner’s “attention is acutely receptive and is directed at the cared for” (Noddings, 2002, p. 28). As a result of this engrossment, there is a motivational shift towards the needs/requirements of the cared for.</td>
<td>Behavioural</td>
</tr>
<tr>
<td>When engrossment and motivational shift occur the learner is actively participating in their learning because their attention and motivation has shifted towards the needs/requirements of the area of study.</td>
<td>When engrossment and motivational shift occur the learner is extremely receptive towards the needs/requirements of the area of study.</td>
</tr>
</tbody>
</table>

We present our findings and recommendations as a series of academic papers followed by the Discussion and Conclusions chapter. The papers were derived from two qualitative studies. The first study involved conducting interviews with educators who have used digital game-play in their classrooms which resulted in four academic papers (2 published and 2 under review) (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d). The second study involved documenting our approach to designing Orbit (Jones, Stieler-Hunt, & Rolfe, 2013), a child sexual abuse (CSA) prevention digital game for classrooms; from this three peer-reviewed academic papers have been published (Scholes, Jones, Stieler-Hunt, & Rolfe, 2014; Scholes, Jones, Stieler-Hunt, Rolfe, & Pozzebon, 2012; Stieler-Hunt, Jones, Rolfe, & Pozzebon, 2014). Finally, in Appendix 2, we present one peer-reviewed, published paper (Beavis, Rowan, Dezuanni, McGillivray, O'Mara, Prestridge, Stieler-Hunt, Zagami, 2014) from a large-scale, multi-site Australian Research Council study. This published paper used interviews with classroom teachers participating in the study to explore the teachers’ beliefs about the use of digital games in classrooms. Each paper has its own research topic. Table 2 maps the research topic explored in each paper with the overarching research questions of this thesis.
Table 2.
Matching academic papers to overarching research questions (RQ1 and RQ2)

<table>
<thead>
<tr>
<th>Thesis section</th>
<th>Paper number</th>
<th>Paper title</th>
<th>Paper topic</th>
<th>Matches RQ1 / RQ2</th>
</tr>
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<tbody>
<tr>
<td>B</td>
<td>Paper 1.</td>
<td>Educators who believe: Understanding the enthusiasm of teachers who use digital games in the classroom</td>
<td>Explores why some educators embrace digital game-play in the classroom.</td>
<td>RQ1</td>
</tr>
<tr>
<td></td>
<td>Paper 2.</td>
<td>Feeling alienated: Teachers feel persecuted for using immersive digital games in classrooms</td>
<td>Presents a model of the process of feeling alienated experienced by some educators using digital games in their classrooms.</td>
<td>RQ1</td>
</tr>
<tr>
<td></td>
<td>Paper 3.</td>
<td>A mentoring model to facilitate adoption of interactive, immersive digital games for classroom learning</td>
<td>Presents the Mentoring Model to Assist Cohorts of Teachers to Use Digital Games in the Classroom that explores a school-based approach to embracing meaningful use of digital games.</td>
<td>RQ2</td>
</tr>
<tr>
<td></td>
<td>Paper 4.</td>
<td>A model for exploring the usefulness of games for classrooms</td>
<td>Presents the Game Uses Model for Classrooms that helps teachers explore the use of digital games for their unique classroom context.</td>
<td>RQ2</td>
</tr>
<tr>
<td>C</td>
<td>Paper 5.</td>
<td>The teachers’ role in child sexual abuse prevention programs: Implications for teacher education</td>
<td>Explores the most theoretically coherent and empirically evidenced accounts of key considerations for effective CSA prevention programs in schools.</td>
<td>RQ2</td>
</tr>
<tr>
<td></td>
<td>Paper 6.</td>
<td>Serious games for learning: Games-based child sexual abuse prevention in schools</td>
<td>Explores the attributes of effective CSA prevention programs for schools and relates those attributes to the design of a serious game.</td>
<td>RQ2</td>
</tr>
<tr>
<td></td>
<td>Paper 7.</td>
<td>Examining key design decisions involved in developing a serious game for child sexual abuse prevention</td>
<td>A case study of the key decisions made in the design of Orbit, a child sexual abuse prevention computer game.</td>
<td>RQ2</td>
</tr>
<tr>
<td></td>
<td>Appendix 2.</td>
<td>Teachers’ beliefs about the possibilities and limitations of digital games in classrooms</td>
<td>Identifies the beliefs about games that motivated teachers’ participation in a digital games research project.</td>
<td>RQ1</td>
</tr>
</tbody>
</table>
The Research Process

In this section we discuss the methodological approaches for the two main studies that contribute to this thesis. Papers contributing to Study 1 (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d) are found in Section B of this thesis and papers contributing to Study 2 (Scholes et al., 2014; Scholes et al., 2012; Stieler-Hunt et al., 2014) are found in Section C of this thesis.

Study 1.

This research is informed by an Interpretivism epistemology which focuses on the meanings people bring to situations and how they interpret their world (O’Donoghue, 2006; Punch, 2009). It is underpinned by the Social Constructivist theoretical perspective which deems that meaning is created through interacting with people as well as the environment (B. Kim, 2001). Hence, it is beneficial if the researcher can operate in the participants’ world as well as the research world (Miller & Glassner, 2004; Minichiello, Aroni, & Hays, 2008). The author of this thesis has familiarity with the participants’ world having coordinated a state-wide games-in-learning project with teachers using digital games in their classrooms, and has 14 years of experience working in education both as a classroom teacher and in advisory capacities.

Stake and Savolainen (1995) labels this type of inquiry in which one examines their own experiences and that of others as “naturalistic generalisation” (p. 85). This research aimed to build shared understandings between the researcher and the participants (Kvale & Brinkmann, 2009) and aimed to discover insights and themes about the daily experiences of teachers who have used digital games in their classrooms. Our goal was “transferability” (Egon & Lincoln, 1982) where our shared understandings can be applied to other situations in context-sensitive ways (Yanchar & Hawkley, 2014).

We chose the grounded theory methodology because it is useful in education research for applied and substantively new fields of practice where theory verification is not appropriate because there is a lack of grounded concepts (Punch, 2009). There are varying approaches to grounded theory. Broadly speaking there is an objectivist approach and a constructivist approach which lies within interpretive traditions.
(Charmaz, 2006). In the objectivist approach documented by Glaser and Strauss (1967), data represent objective facts about a knowable world. The researcher aims to discover these objective facts and the analytical tools used to do this are applied according to a series of steps (Charmaz, 2006). However, in interpretive, constructivist approaches such as our approach, data and analysis are created from shared experiences between participants and the researcher and other sources of data. Analytical tools are useful for constructing grounded theory but the process is not prescriptive or mechanical (Charmaz, 2006).

Methods used in grounded theory include observation and interviews; and identifying concepts, their dimensions and parameters, and their relationships to each other through techniques such as questioning, constant comparisons and memos (Corbin & Strauss, 2008). The main data used in this study were in-depth, semi-structured, face-to-face interviews which ranged from one to two hours in duration and were conducted with 13 (8 female, 5 male) educators who have used digital gameplay in the classroom. All participants interviewed had worked within the educational system of Queensland, Australia. A convenience sample was used whereby potential participants responded to an invitation sent to a Queensland-based games-in-learning email list or were approached through professional networks. The educator participants were in different stages of their educational careers from beginning teachers to retirees to educational advisors, and from diverse educational settings ranging from primary schools to secondary schools, mainstream to special education, rural to urban environments, and private to government schools. Eight of the participants were regular classroom teachers in primary or secondary schools. Five of the participants were working in advisory capacities within the Queensland State Government Education Department, and of these, all but one started using digital games in learning when based at a school. The semi-structured interviews were loosely based on an interview guide (see Figure 1) that explored participants’ beliefs about learning, how they have used information and communication technologies (ICT) in learning more broadly, their beliefs about using digital games for student learning, and how they have used digital games for student learning.
Interviews were audio recorded, transcribed and analysed using Version 10 of QSR International’s NVivo Qualitative Data Analysis Software (2012). A variety of coding methods and analytical tools were used on data including writing memos, attribute coding, open-ended, initial coding, subcoding, theming the data, pattern coding, axial coding, theoretical coding, code weaving, theorising (Saldaña, 2012), the conditional/consequential matrix and the paradigm (Corbin & Strauss, 2008).

Grounded theory provides “systematic, yet flexible guidelines for collecting and analysing qualitative data to construct theories grounded in the data themselves” (Charmaz, 2006, p. 2). Grounded theory data collection is guided by theoretical sampling rather than sample size. The researcher stops increasing the sample size when new participants are no longer giving new information about the research concerns, that is, theoretical saturation (Auerbach & Silverstein, 2003). Where possible and practical, the order of the interviews was guided by theoretical sampling. That is, we chose subsequent participants with the intent to answer questions we had about concepts emerging from analysis of the existing data (Corbin & Strauss, 2008). Where this was not possible or practical, theoretical sampling was used to guide the analysis process as suggested in Corbin and Strauss (2008).

Theoretical sampling guided both our selection of participants and our analysis. Selecting a variety of participants helped maximise opportunities to thoroughly develop concepts and identify relationships between them (Corbin & Strauss, 2008). Table 3 and Table 4 give an overview of the variation we achieved in our participants in terms of professional and personal characteristics respectively.

Table 3 indicates that the professional experiences of our participants were varied. The number of years working in the field of education varied between three years and thirty years. There was also a mix between primary and secondary school teachers, classroom teachers and teacher advisors, teachers teaching in rural and urban settings, and teachers with a variety of specialty areas. Perhaps the one regrettable lack of variation was that we only had one teacher from a non-government school. It may be the case that digital games are less often used in non-government schools in Queensland or a factor of recruitment.
Although we did not recruit based on personal characteristics, we did gather educators with a range of ages and personal familiarity with games, as shown in Table 4. We also recruited both male and female educators and had teachers from a range of family backgrounds, although most were parents with between one and three children.

Our analysis was also guided by theoretical sampling in that we were constantly going back and forth between sections of our data to enable constant comparisons that further developed our evolving concepts and identified relationships between concepts (Corbin & Strauss, 2008). We documented the evolution of our concepts within memos. We provide an example of one of our research memos in Appendix 4. Table 5 explains how our various data informed each of our key categories. It also indicates when participants served as negative cases for particular concepts. Negative cases do not fit the pattern being observed and can add richness to the research (Corbin & Strauss, 2008).

We reached theoretical saturation for all of our key categories. That is, new participants were no longer giving new information about the research concerns (Auerbach & Silverstein, 2003), key categories had considerable depth and breadth, and the relationships between concepts were clear (Auerbach & Silverstein, 2003; Corbin & Strauss, 2008).

Throughout our research we contrast our findings to existing learning theories and diffusion theories including diffusion of innovations theory (Rogers, 2003), theory of planned behaviour (Ajzen, 1991), modified situated cognition theory (J. R. Anderson et al., 1996; Bjork & Richardson-Klavehn, 1989), sense of community (Osterman, 2000), and model of moral education (Noddings, 2002). In agreement with the grounded theory methodology, we did not use these theories to construct our categories and models but rather to discuss them after they were created. This ensures that our findings are truly grounded in the data we collected.
Table 3.
Professional experiences of research participants

<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>Schooling sector</th>
<th>Schooling level taught</th>
<th>Number of years in education</th>
<th>Professional role(^a)</th>
<th>Environment</th>
<th>Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jennifer</td>
<td>Government</td>
<td>Primary</td>
<td>3</td>
<td>CT</td>
<td>Urban</td>
<td>No specialty</td>
</tr>
<tr>
<td>Damion</td>
<td>Non-Government</td>
<td>Secondary</td>
<td>20</td>
<td>CT</td>
<td>Rural</td>
<td>Information &amp; Communication Technologies</td>
</tr>
<tr>
<td>Ashlee</td>
<td>Government</td>
<td>Primary</td>
<td>30</td>
<td>CT</td>
<td>Urban</td>
<td>Distance education</td>
</tr>
<tr>
<td>Linn</td>
<td>Government</td>
<td>Primary</td>
<td>15</td>
<td>CT</td>
<td>Urban</td>
<td>Distance education</td>
</tr>
<tr>
<td>Milly</td>
<td>Government</td>
<td>Secondary</td>
<td>18</td>
<td>CT &amp; TA</td>
<td>Urban</td>
<td>Multimedia</td>
</tr>
<tr>
<td>Jinny</td>
<td>Government</td>
<td>Primary</td>
<td>9</td>
<td>CT</td>
<td>Urban</td>
<td>No specialty</td>
</tr>
<tr>
<td>Miles</td>
<td>Government</td>
<td>Secondary</td>
<td>7</td>
<td>CT</td>
<td>Rural</td>
<td>English</td>
</tr>
<tr>
<td>Minnie</td>
<td>Government</td>
<td>Primary</td>
<td>29</td>
<td>CT &amp; TA</td>
<td>Rural</td>
<td>Health &amp; Physical Education</td>
</tr>
<tr>
<td>JC</td>
<td>Government</td>
<td>NA</td>
<td>23</td>
<td>TA</td>
<td>Urban</td>
<td>Special education</td>
</tr>
<tr>
<td>Bernita</td>
<td>Government</td>
<td>Secondary</td>
<td>30</td>
<td>CT</td>
<td>Urban</td>
<td>Mathematics and science</td>
</tr>
<tr>
<td>Esta</td>
<td>Government</td>
<td>Primary</td>
<td>22</td>
<td>TA</td>
<td>Urban</td>
<td>Head of curriculum</td>
</tr>
<tr>
<td>Grant</td>
<td>Government</td>
<td>Primary</td>
<td>3</td>
<td>CT &amp; TA</td>
<td>Urban</td>
<td>No specialty</td>
</tr>
<tr>
<td>Steven</td>
<td>Government</td>
<td>Primary</td>
<td>5</td>
<td>CT &amp; TA</td>
<td>Urban</td>
<td>Special education</td>
</tr>
</tbody>
</table>

\(^a\)CT: classroom teacher, TA: teacher advisor
Table 4.
Personal characteristics of research participants

<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>Gender</th>
<th>Marital Status</th>
<th>Number of children</th>
<th>Do you play digital games?</th>
<th>How often do you play digital games?</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jennifer</td>
<td>female</td>
<td>divorced</td>
<td>3</td>
<td>yes</td>
<td>several times a week</td>
<td>✓</td>
</tr>
<tr>
<td>2. Damion</td>
<td>male</td>
<td>married</td>
<td>1</td>
<td>no</td>
<td>not applicable</td>
<td>✓</td>
</tr>
<tr>
<td>3. Ashlee</td>
<td>female</td>
<td>married</td>
<td>2</td>
<td>no</td>
<td>not applicable</td>
<td>✓</td>
</tr>
<tr>
<td>4. Linn</td>
<td>female</td>
<td>married</td>
<td>3</td>
<td>no</td>
<td>not applicable</td>
<td>✓</td>
</tr>
<tr>
<td>5. Milly</td>
<td>female</td>
<td>married</td>
<td>2</td>
<td>yes</td>
<td>most days</td>
<td>✓</td>
</tr>
<tr>
<td>6. Jinny</td>
<td>female</td>
<td>married</td>
<td>2</td>
<td>yes</td>
<td>rarely</td>
<td>✓</td>
</tr>
<tr>
<td>7. Miles</td>
<td>male</td>
<td>single</td>
<td>0</td>
<td>yes</td>
<td>most days</td>
<td>✓</td>
</tr>
<tr>
<td>8. Minnie</td>
<td>female</td>
<td>married</td>
<td>1</td>
<td>yes</td>
<td>most days</td>
<td>✓</td>
</tr>
<tr>
<td>9. JC</td>
<td>male</td>
<td>married</td>
<td>0</td>
<td>yes</td>
<td>most days</td>
<td>✓</td>
</tr>
<tr>
<td>10. Bernita</td>
<td>female</td>
<td>married</td>
<td>2</td>
<td>yes</td>
<td>most days</td>
<td>✓</td>
</tr>
<tr>
<td>11. Esta</td>
<td>female</td>
<td>married</td>
<td>2</td>
<td>yes</td>
<td>several times a month</td>
<td>✓</td>
</tr>
<tr>
<td>12. Grant</td>
<td>male</td>
<td>married</td>
<td>0</td>
<td>yes</td>
<td>several times a month</td>
<td>✓</td>
</tr>
<tr>
<td>13. Steven</td>
<td>male</td>
<td>married</td>
<td>2</td>
<td>yes</td>
<td>several times a week</td>
<td>✓</td>
</tr>
</tbody>
</table>
Table 5.
How each participant’s interview data informed the major categories within our analysis

<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>Becoming a believer (Paper 1)</th>
<th>Feeling alienated (Paper 2)</th>
<th>Mentoring Model (Paper 3)</th>
<th>Game Uses Model for Classrooms (Paper 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jennifer – first participant, primary school teacher at a school in a low socio-economic area</td>
<td>Jennifer’s comment, “it was much better than anything we… could have come up with” began the emergence of the <em>becoming a believer</em> category. Early in our research we labelled this concept as <em>perceiving need</em> because participants explained that other teaching methods lacked the engagement that digital games could provide. Over time it evolved into the <em>believer</em> category. Her explanation of her interest in using digital games in learning fit with each concept we identified in the process of <em>becoming a believer</em>. She strongly attributed her personal connection to digital games to playing them with her own children.</td>
<td>Jennifer expressed some frustration that other teachers did not spend time accessing information and advocacy to use more electronic resources (including games). She attributed other teachers’ non-use of games to not being parents. She had a small amount of support from her head of curriculum and teaching partner, so the <em>feeling alienated</em> category did not feature strongly in this interview.</td>
<td>NA</td>
<td>Jennifer’s use of a dance game in her curriculum contributed strongly to the development of the <em>practising</em> component of the model. Jennifer was of mature age, and was a beginner teacher (three years experience). When discussing her intended future use of digital games, she described extending game use to include aspects that would fit the <em>inspiring</em> and <em>discovering affinity</em> components of the model.</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
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</tr>
<tr>
<td>2. Damion – ICT specialty secondary school teacher at an all boys’ school</td>
<td>Analysing Damion’s interview contributed to the development of the <em>perceiving need</em> concept that later evolved into the <em>believer</em> category. He recognised that digital games were important parts of students’ home lives and wanted to use digital games in his teaching. Despite not being a game player himself, he does enjoy making digital games.</td>
<td>Damion created an online multi-player game for his students to use and co-construct. He explained that his teaching partner refused to use the game with his class and he felt deflated when that happened. The <em>feeling alienated</em> category was just starting to emerge.</td>
<td>NA</td>
<td>Damion described how his multi-player game was useful for connecting with students who normally did very little work in class and how it inspired them to do more school work than usual. This informed the development of the <em>discovering affinity</em> and <em>inspiring</em> components of the model.</td>
</tr>
<tr>
<td>3. Ashlee – distance education primary school teacher, 30 years teaching experience</td>
<td>Ashlee felt that exposing students to digital games (including virtual worlds) and other newer forms of digital media was essential to prepare them for living in a changing world in the 21st Century. This idea contributed to the development of the <em>perceiving need</em> concept that later evolved into the <em>believer</em> category.</td>
<td>Ashlee was content with the level of support she received for her use of digital games, although she did report some school administration imposed limitations. She worked within these limitations. This was the beginning of the emergence of our <em>use games on the down-low</em> by specialist teachers concepts.</td>
<td>NA</td>
<td>Ashlee found co-constructing a virtual world helped students to develop social skills and collaborate. She had tried other methods to achieve this previously but found nothing that worked as well with her distance education students. Ashlee’s interview informed development of the <em>discovering affinity</em> and <em>inspiring</em> components of the model.</td>
</tr>
</tbody>
</table>
**Participant pseudonym** | **Becoming a believer (Paper 1)** | **Feeling alienated (Paper 2)** | **Mentoring Model (Paper 3)** | **Game Uses Model for Classrooms (Paper 4)**
---|---|---|---|---
4. Linn – distance education primary school teacher | Linn’s interview led the progression from the *perceiving need* concept toward the *believer* category. From this interview we introduced the concept of *fervour* to describe her almost religious zeal about the benefits of using digital games in the classroom. Linn’s explanation of her interest in using digital games in learning fits with each concept we identified in the process of *becoming a believer*. She attributed her personal interest in games-in-learning to her parental role; and attributed her professional interest to her observations of students not performing well on tests using traditional methods of teaching and her post-graduate studies (*accessing information and advocacy* concept). | Linn was one of two teachers where *feeling alienated* featured most strongly. She applied to transfer from her previous school because she felt that her teaching partner ostracised her because of her fervour for using digital games (*clash of beliefs* and *cycle of resentment* concepts). She also encountered many school-based roadblocks. Many times she had to abort her use of digital games completely and at other times scale back her use of digital games. She employed some of the tactics described in our *compromising and evading* concept. Linn made special mention that whilst there was advocacy for using digital games in classrooms, it was insufficient (*insufficient advocacy* concept). | Negative case – Linn unsuccessfully attempted to persuade other teachers at her previous school to use digital games in the classroom. She experienced resentment from her colleagues and school-based roadblocks to her work. Linn described how she found that using digital games inspired reluctant writers to write more than they ever had before (*inspiring* component). She also explained how her use of digital games built rapport between students and between teacher and students (*discovering affinity* component).
<table>
<thead>
<tr>
<th>Participant pseudonym</th>
<th>Becoming a believer (Paper 1)</th>
<th>Feeling alienated (Paper 2)</th>
<th>Mentoring Model (Paper 3)</th>
<th>Game Uses Model for Classrooms (Paper 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Milly – multimedia specialty secondary school teacher, who had recently become a teacher advisor for her district</td>
<td>Analysis of Milly’s interview contributed to the development of the perceiving need concept that later evolved into the believer category. She attributed her personal interest in games-in-learning to her parental role; and related her professional interest to her personal interest, her post graduate studies, and accessing information and advocacy. Milly indicated that no one else in her school was interested in using digital games, but she did not mind because her school offered her the freedom to do so on her own (specialised teaching areas increase teacher independence), thus she was able to use games on the down-low.</td>
<td>NA</td>
<td>Milly described how she had used a large variety of digital games or components of digital games as a stimulus for students to create digital artefacts (inspiring component).</td>
<td></td>
</tr>
<tr>
<td>6. Jinny – primary school teacher in a high socio economic area. She only used short form drill-and-practice learning games.</td>
<td>Analysis of Jinny’s interview contributed to the development of the perceiving need concept that later evolved into the believer category. She provided a different context that provided depth for the believer category. Whilst almost all of our other participants were repurposing entertainment games for classroom use, she was using short form drill-and-practice learning games. When considering</td>
<td>Jinny reported that most of her colleagues did not use digital games in their teaching. However, she did not experience any negativity from her colleagues, as she was using short form drill-and-practice learning games, not entertainment games. Analysing Jinny’s interview helped us explore the boundaries around the feeling alienated category.</td>
<td>NA</td>
<td>Jinny used short form drill-and-practice learning game with her students to practise skills (practising component).</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
</tr>
<tr>
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</tr>
<tr>
<td>Miles - English specialty secondary school teacher, rural school. He only used entertainment games in his teaching.</td>
<td>Analysis of Miles’ interview continued to develop the fervour concept which later became the believers category. His explanation of his interest in using digital games in learning fits with each concept we identified in the process of becoming a believer. He attributed his personal connection to digital games to playing them himself (being a gamer). He started using digital games in the classroom when he was invited by someone in his district office. He attributes much of his work to personal factors (being interested himself).</td>
<td>Miles was one of two teachers where the feeling alienated concept featured most strongly. He described that he constantly faced roadblocks to using digital games in the classroom and one of the biggest was his school colleagues who viewed games negatively. He also explained how his use of digital games increased his popularity with students (increased teacher popularity) and increased resentment from his fellow teachers (cycle of resentment). His efforts to convince his colleagues about the benefits of using digital game-play in the classroom did not work (cannot be convinced).</td>
<td>Negative case – Miles unsuccessfully tried to mentor other teachers to use digital games in the English curriculum. He had some support from his head of department to do so, but was still working full-time in the classroom (a successful mentor does not work full-time in the classroom attribute in the model). He planned the unit of work for the teachers rather than engaging them in a collegial planning process. They implemented the unit of work all at once rather than trying it out before spreading the contagion. Even with a full teaching load, he attempted to support some of his colleagues. However, his</td>
<td>Miles was the first participant to treat games as an influencing artefact. He used them as a text to analyse with English classes. He also noticed the side benefit that it improved social interactions between students (discovering affinity component) and students were more motivated to do tasks relating to the game (inspiring component).</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
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<td>-----------------------</td>
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</tr>
<tr>
<td>8. Minnie – Health and Physical Education (HPE) speciality primary school teacher, rural area, 29 years teaching experience</td>
<td>Analysis of Minnie’s interview continued to develop the fervour concept which later became the believers category. Her explanation of her interest in using digital games in learning fits with each concept we identified in the process of becoming a believer. She became a gamer in her mid-40s (being a gamer), with her personal interest arising out of her professional interest. She has an adult son who also plays games. She was invited to apply to use digital games in the classroom by someone from her district’s office (being invited).</td>
<td>NA – Minnie did not report feeling alienated because, with support from the school’s administration, she was able to persuade staff in her school to use digital games.</td>
<td>Minnie was a part-time worker (does not work full-time in the classroom) and had an informal leadership role in the school. She would choose to come to school on her days off to help other teachers use digital games in the classroom. She would support teachers responsively and work with those who expressed an interest in using digital games in their classroom (leading the willing). As a result, colleagues were open to using digital games in their classrooms (open colleagues).</td>
<td>Minnie described both her use of digital games in her HPE classes and how the teachers she mentored used digital games in their classrooms. The uses she described contributed to all four components of the Game Uses Model for Classrooms (practising, influencing, discovering affinity, and inspiring).</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>9. JC – state-wide teacher advisor for students with disabilities</td>
<td>Analysis of JC’s interview contributed to the development of the perceiving need concept that later evolved into the believer category. He explained the many ways that he had seen teachers establish meaningful links between curricula, digital game-play and class context.</td>
<td>NA – JC did not comment on feeling alienated directly in his initial interview, possibly because he is not based in one school.</td>
<td>NA – JC coordinates initiatives across the State to help teachers use technologies to benefit students with disabilities. His experiences did not contribute to this Mentoring Model because he does not have involvement on a day-to-day basis with the same teachers.</td>
<td>JC described many examples of how digital games have been used with students with disabilities. These examples helped develop all four components of the Game Uses Model for Classrooms (practising, influencing, discovering affinity, and inspiring).</td>
</tr>
<tr>
<td>10. Bernita – mathematics / science / ICT specialty secondary school teacher, 30 years teaching experience</td>
<td>Analysis of Bernita’s interview continued to develop the fervour concept that later became the believers category. Her involvement with using digital games in the classroom extended back to the 1980s. Bernita’s explanation of her interest in using digital games in learning fits with each concept we identified in the process of becoming a believer.</td>
<td>Bernita had experienced much alienation throughout the 30 years of her teaching career due to her use of digital games (feeling alienated). She chose to compromise and evade the roadblocks she faced by changing the types of games she used in the classrooms (use “acceptable” games) and using games as a reward (enrichment-only or as a reward). She expressed her dissatisfaction that she could not use them more meaningfully in the curriculum. She described</td>
<td>Negative case – Although Linn and Miles were the main negative cases used for the Mentoring Model, we also used Bernita’s comments about unsupportive colleagues to contrast with Esta and Minnie’s interviews.</td>
<td>Bernita’s descriptions of her use of digital games in her classroom were used to inform the development of the practising, discovering affinity, and inspiring components of the model.</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td><strong>Becoming a believer</strong> (Paper 1)</td>
<td><strong>Feeling alienated</strong> (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td><strong>Game Uses Model for Classrooms</strong> (Paper 4)</td>
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<tr>
<td>Esta – primary school head of curriculum</td>
<td>Analysis of Esta’s interview continued to develop the fervour concept which later became the believers category. She explained how she was able to establish meaningful links between curricula, digital game-play, and class context. Her explanation of her interest in using digital games in learning fitted with each concept we identified in the process of becoming a believer. She recalled initially being invited by a regional staff member to use digital games in the classroom. She also attributed much of her valuing of digital games to her parental role (connecting personally).</td>
<td>NA – Esta did not report feeling alienated because, with support from the school’s administration, she was able to persuade staff in her school to use digital games.</td>
<td>Esta’s interview contrasted greatly with most of the previous participants’ interviews. One of the strongest initial concepts was that her colleagues were accepting of games. We then began to explore why her colleagues were accepting of games. This concept gradually evolved into the Mentoring Model. Using constant comparison we were also able to identify commonalities with Minnie’s experiences, even though Minnie was not in a formal leadership role in her school. We were also able to see how Minnie and Esta’s approaches differed to</td>
<td>Esta described how teachers from across her school have used digital games in their classrooms. The uses she described contributed to all four components of the Game Uses Model for Classrooms (practising, influencing, discovering affinity, and inspiring).</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
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<td>teachers like Linn and Miles who had unsuccessfully tried to mentor their colleagues (negative cases). Some concepts that stood out from Esta’s interview were that she had a formal leadership role within her school; she does not work full-time in the classroom; she proactively seeks opportunities for her school’s educators to use digital games in the classroom; and she responsively supported her colleagues starting with collegial planning.</td>
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<td>12. Grant – primary school teacher who had recently become a teacher advisor, 3 years teaching experience</td>
<td>Negative case – Grant had tried to use digital game-play in his classroom but he did not feel successful. Some of the initial concepts we identified in his interview were fear of losing control of the class, games not a good curriculum / context match, and use of games felt forced and piece-meal, not organic. He was a useful negative case</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
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<td>13. Steven – teacher in a primary school special education unit, who had recently become a teacher advisor</td>
<td>because, like the believers, he identified as an ed tech innovator / enthusiast but he had not been able to establish meaningful links between curricula, digital game-play, and his class context. He also semi-regularly played games himself.</td>
<td>Steven reported that his main barrier to using digital game-play in his school was that he had to work with the mainstream teachers of the students in the special education unit. These mainstream teachers were not interested in using digital game-play in the classroom. He reported that he used one digital game with a student who was being withdrawn from mainstream class, which informed the development of the concept specialised teaching areas increase teacher independence. He expressed regret that although the</td>
<td>Negative case – Although Linn and Miles were the main negative cases used for the Mentoring Model, we also used Steven’s comments about unsupportive colleagues to contrast with Esta and Minnie’s interviews.</td>
<td>Steven’s use of digital game-play with a student contributed to the practising, influencing, and discovering affinity components of the model.</td>
</tr>
<tr>
<td>Participant pseudonym</td>
<td>Becoming a believer (Paper 1)</td>
<td>Feeling alienated (Paper 2)</td>
<td>Mentoring Model (Paper 3)</td>
<td>Game Uses Model for Classrooms (Paper 4)</td>
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<td>teacher of the student</td>
<td>recognised how useful the</td>
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<td>game was for the withdrawn</td>
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<td>student's understanding of</td>
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<td>the topic, she still did</td>
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<td></td>
<td></td>
<td>not choose to adopt it</td>
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</table>

Note. Words and phrases appearing in *italics* refer to a concept, category, attribute, or theme from the research.
We used grounded theory to understand the experiences of educators who were using digital game-play in the classroom. Corbin and Strauss (2008) provide 10 general criteria to assess the quality of grounded theory research: (1) fit, (2) applicability, (3) concepts, (4) contextualisation of concepts, (5) logic, (6) depth, (7) variation, (8) creativity, (9) sensitivity, and (10) evidence of memos. In the following paragraphs we explore how our study addressed each criteria.

**Fit** explores whether the research resonates with the experiences of the study participants and the professionals for whom the research was intended (Corbin & Strauss, 2008). We addressed the criterion of fit by emailing our participants to ask if and how our findings resonate with their experiences as an educator using digital games in the classroom and how helpful they think our findings may be to themselves and others. We received responses from JC and Milly (pseudonyms) which we have quoted and discussed below.

Happy to assist with your research. The paper(s) looks great. Will certainly be something I will reference in my work. Your finding(s) I think are consistent with what I have experienced. I think also that there is somewhat of a stigma of using games in learning, as many teachers do not associate learning with games. I also think that some teachers unfortunately do use games as a reward or filler for play or free time, rather than associating it with true learning or, as was mentioned in your paper, linking to the curriculum, which should be paramount. (JC, students with disabilities teacher advisor)

Wow, looks fantastic! You have been busy. I agree with everything you have mentioned. I just wanted to reinforce my agreement with the Feeling Alienated. I had many negative comments from colleagues who could not understand how the games enhance the learning process. I also had some negative feedback from parents who did not understand either. (Milly, secondary school teacher)
JC and Milly’s comments align directly with our findings expressed in Paper 1 (Stieler-Hunt & Jones, 2015a) and Paper 2 (Stieler-Hunt & Jones, 2015b) even though the *feeling alienated* category did not feature as strongly within their interview data as other participants. Further, JC works as a teacher advisor across schools and his experiences indicate that digital games are usually used in classrooms to fill time rather than as an integral part of the curriculum. This supports the need for a model for how to use digital games in the classroom and a professional development model for helping teachers use games in the curriculum, which we provide in Paper 4 (Stieler-Hunt & Jones, 2015d) and Paper 3 (Stieler-Hunt & Jones, 2015c) respectively. JC also explained that he plans to use this research in his teacher advisory capacity. JC and Milly did not comment on other aspects of the research.

*Applicability* (criterion 2) assesses whether the research findings offer new explanations and insights and whether they can be used to develop policy, change practice, or add to the profession’s knowledge base (Corbin & Strauss, 2008). Our research offers applicability in that each paper offers new ideas for changing practice, policy, or extending what is known about the use of digital game-play in classrooms. We have collated these findings and listed a number of impacting factors and recommendations in our Discussion and Conclusions chapter.

*Concepts* (criterion 3) assesses whether the research findings are organised around concepts and themes (Corbin & Strauss, 2008). Our research has been organised around the following key concepts: *becoming a believer* (Stieler-Hunt & Jones, 2015a), *the lone believer, feeling alienated* (Stieler-Hunt & Jones, 2015b), *responsive cheer squad captain, collegial planning* (Stieler-Hunt & Jones, 2015c), and using digital games for *practising, influencing, inspiring, and discovering affinity* (Stieler-Hunt & Jones, 2015d).

Context is required to help the reader fully understand the circumstances surrounding the concepts (Corbin & Strauss, 2008). Our research provides *contextualisation of concepts* (criterion 4) by outlining how concepts relate to each other and describing the context under which each concept occurs. For example, Paper 2 (Stieler-Hunt & Jones, 2015b) explains the circumstances around how *the lone believer* came to *feel alienated* from their teaching colleagues, whereas Paper 3 (Stieler-Hunt &
Jones, 2015c) explains the circumstances that led the responsive cheer squad captain to have open colleagues.

Logic (criterion 5) assesses whether the ideas expressed within the research flow sensibly (Corbin & Strauss, 2008). Initially we sought to understand teachers’ experiences of using digital game-play in the classroom, so we recruited teachers to tell us about their experiences. We used theoretical sampling to guide our selection of participants and our analysis. Table 5 explains how our concepts were logically derived from our participants’ data. Further, it outlines each participant’s contribution to our major concepts. Overall, this study also has logical flow to its findings. For example, we begin by exploring the phenomenon of how teachers become believers in using digital game-play in the classroom (Stieler-Hunt & Jones, 2015a). Next, we explore what happens when believer teachers feel inadequately supported by their school’s administration team and their teaching colleagues (feeling alienated) (Stieler-Hunt & Jones, 2015b). This flows into considering what happens if believer teachers have adequate support from their school’s administration team and are able to help their colleagues discover the potential of using digital game-play in the classroom (responsive cheer squad captain) (Stieler-Hunt & Jones, 2015c). Finally, we explore the different ways believer teachers use digital game-play in their curriculum (practising, influencing, inspiring, and discovering affinity) (Stieler-Hunt & Jones, 2015d).

Depth (criterion 6) assesses how well the research provides descriptive details that provide richness and variation (Corbin & Strauss, 2008). We provide many descriptive details within our research papers by discussing the nature of, and underlying reasons for, the differing experiences of our participants. We present their experiences using illustrative quotes and vignettes (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d).

Criterion 7 assesses whether variation has been built into the findings. Our findings indicated that not all believers have the same experiences (e.g., compare responsive cheer squad captain (Stieler-Hunt & Jones, 2015c) with the lone believer (Stieler-Hunt & Jones, 2015b)). We achieved variation by recruiting educators who had a variety of teaching experiences (see Table 3) and personal characteristics (see Table 4).
We also informed our findings by participants who represented negative cases, cases that do not fit the revealed patterns (Corbin & Strauss, 2008). Negative cases for particular concepts are identified in Table 5.

*Creativity* (Criterion 8) assesses whether the research findings are presented in a creative and innovative way and whether the research contributes something new (Corbin & Strauss, 2008). Our findings have been explained in a variety of ways including diagrams, developing models, illustrative quotes from our participants, and vignettes (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d). Many of the concepts identified in our research extend the existing literature. For example, the concepts of *the lone believer* and *feeling alienated* (Stieler-Hunt & Jones, 2015b) were not present in our searches of the literature. We also found that existing literature did not explore teachers’ parental experiences to help explain their interest (or lack of interest) in using digital game-play in the classroom (Stieler-Hunt & Jones, 2015a). We also inductively derived our own unique models to help advance the use of digital game-play in classrooms: the Game Uses Model for Classrooms (Stieler-Hunt & Jones, 2015d) and the Mentoring Model to Assist Cohorts of Teachers to Use Digital Games in the Classroom (Stieler-Hunt & Jones, 2015c).

Criterion 9 assesses the *sensitivity* of the researcher towards her participants. Specifically, it assesses whether the analysis drove the development of concepts and themes as opposed to them being preconceived ideas or assumptions that were forced upon the data (Corbin & Strauss, 2008). Our semi-structured participant interviews were loosely directed by an interview guide (see Figure 1). The guiding statements near the top of the guide were the main prompts used to start discussion. Each guiding statement was open-ended. Although we anticipated the types of responses we may have received and developed ideas for sub-questions (see the bullet points appearing below the prompts in Figure 1), we were also carefully listening to the participant and allowed interviews to evolve organically. The final concepts and themes were inductively derived through being sensitive to the data.

Since a researcher cannot possibly remember all of the insights, questions and thinking that occurs during analysis, the researcher should provide *evidence of memos*
(criterion 10) that discuss and abstract the findings (Corbin & Strauss, 2008). In the course of conducting this study we wrote more than 350 memos. Our use of memos included discussing our insights into the data, questioning our current thinking, documenting our use of analytical techniques, doing a close read on the content of particular participant statements, and identifying next steps in the research process. In Appendix 3 we provide a sample memo that explores a participant’s fit in terms of the in-progress, overarching theory we were deriving, and starts to explore relationships between concepts and evolve the titles and definitions for these concepts.

_Study 2._

Our second study combines practice-led research with research-led practice methodologies. In their introduction to practice-led research, Smith and Dean (2009) state that creative works are a form of research and that the creation of these works can also be documented, theorised, and generalised. Further, they state that creative works are a form of research if they contain new knowledge that can be transferred to other contexts with further explanation. Practice-led research complements research-led practice. Research-led practice refers to scholarly research leading to the creation of an artefact (Smith & Dean, 2009). Practice-led research and research-led practice can be used collaboratively, iteratively, cyclically, and in a manner that has web-like properties. During the process sub-cycles repeat, possibly with variation (iterative); research-led practice alternates with practice-led research (cyclic); and there are numerous entrance and exit points as well as cross-referencing (web-like and collaborative). (Smith & Dean, 2009).

We flexibly and fluidly switched between using practice-led research and research-led practice to design _Orbit_ (Jones et al., 2013), a free-to-play CSA prevention computer game for 8-10 year olds. At times practice-led research and research-led practice were used simultaneously or nested within each other.
Interview Guide

Interviews will be semi-structured and the types of questions asked will be guided by theoretical sampling. Below is a list of starting concepts to be covered by the interviews.

<table>
<thead>
<tr>
<th>Describe what got you to the stage of using digital games in the curriculum</th>
<th>Describe how you went about planning to use digital games as part of the curriculum</th>
<th>Describe how the unit of work involving games unfolded</th>
<th>Describe how well you think the unit of work involving games worked</th>
<th>Describe the role you see digital games having in education in the future</th>
</tr>
</thead>
</table>
| Sorts of ideas/themes that may emerge:  
- Communities of practice  
- School commitment  
- Being a game player  
- Watching students engage with games  
- The teachers' views on learning  
- It was the students' idea  
  ➢ Describe what led up to the choice of game(s)  
  ➢ Types of games that were considered  
  ➢ Planning to assess the student learning that occurred  
  ➢ How did students factor into the planning (e.g. student-negotiated learning, catering for individual differences)  
  ➢ How well did students interact with the game?  
  ➢ Where did they interact with the game?  
  ➢ Measures of success  
  ➢ How well did it work for the different groups of students you teach?  |
| Demographic information:  
- Age  
- Relationship status  
- Number of Children  
- Number of years teaching  
- Number of years teaching at current school  
- Gender  
- When were you trained  
- Teacher qualifications  
- Do you play digital games?  
- How frequently do you play games at home?  
- What types of games do you play?  
- Singly / against others?  |

Figure 1. Interview guide for Study 1.
We began with a research-led practice cycle where small teams of researchers were established to develop protocols to conduct systematic evidence-based reviews following Macdonald (2000) and J. Evans and Benefield (2001). Each team produced a report on a topic relevant to the design of *Orbit* (Jones et al., 2013), such as learning styles of 8-10 year old boys and girls and how they relate to digital game-play; the use of digital game-play in education; effects of CSA programs on disclosures of CSA; effectiveness and key messages of CSA prevention programs; and training for adults to recognise and respond to disclosures of CSA. The author of this thesis contributed to the development of the reports on the effectiveness and key messages of CSA prevention programs and the use of digital game-play in education. The design team, led by the author of this thesis, analysed the findings from these reports to create a *theory of change* (see Figure 2), a “holistic process for identifying intended outcomes that is built around a pathway of change… [for a] social intervention” (Swain, 2007, p. 805) and also a set of learning objectives for children and adults (see Appendix 3). We used Bloom, Engelhart, Furst, Hill, and Krathwohl’s (1956) taxonomy of educational objectives to identify the types and levels of knowledge players needed, to develop and to draft specific and measurable learning objectives.

Practice-led research was also used to design *Orbit* (Jones et al., 2013). Throughout the planning and design process, the game designers would regularly meet with practitioners in the field of CSA prevention and CSA counselling to get their expert feedback on the game’s design and their input into aspects of the game’s design. These practitioners provided feedback and input to the theory of change (see Figure 2) and the learning objectives (see Appendix 3), helped write mini-game scenarios, and gave feedback on game-play issues. We also used teachers and CSA prevention and counselling practitioners to provide input into the *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, Mclean, Mclean, & Sharp, 2013) (see Appendix 7) and the *Orbit* website (Stieler-Hunt, Jones, & Rolfe, 2013)

We also conducted our own primary research (research-led practice) to inform the design of *Orbit* (Jones et al., 2013). We requested and received from the Queensland Police Service police reports of CSA which we adapted into mini-game scenarios. We
also conducted research in schools to inform the development of Orbit (Jones et al., 2013), including more than 20 sessions involving focus groups and observing gameplay at two different schools. The author of this thesis was responsible for designing, conducting and analysing these focus groups and player observations (see Appendix 5 and Appendix 6 for sample focus group and play-test session outlines). Earlier research sessions involved focus groups where students would explain the types of digital games they played, and provide feedback and input into prospective game characters and game elements. The analysis of these focus groups informed the development of Orbit (Jones et al., 2013). For example, Orbit (Jones et al., 2013) has a facility where players, their classmates and trusted adults can identify real world activities that they are good at, as a means to build a healthy self-concept. We analysed children’s, their friends’ and families’ responses to this question, to influence the development of the in-game list that players can select from. Later school-based sessions involved students playing either elements of the game, or the whole game from start to finish over a number of weeks. Their game-play was observed and video recorded, then focus groups were conducted at the end of each game-play session. Analysis of observations of students playing the game and student feedback was used to fine-tune the game.

The author of this thesis also contributed to developing an evaluation strategy for Orbit (Jones et al., 2013) which used: a combination of adaptions of standardised instruments (e.g., “What if” Situations Test (Wurtele, Hughes, & Owens, 1998), Children’s Knowledge of Abuse Questionnaire (Tutty, 1995), Parents’ Knowledge and Attitude Questionnaire (MacIntyre & Carr, 1999), and Parent Perception Questionnaire (Hébert, Lavoie, Piche’, & Poitras, 2001; Wurtele, Kast, & Melzer, 1992)) to evaluate the effectiveness of CSA prevention initiatives for children and parents; two different experimental groups (game only, game with lesson plans); a control group; and qualitative interviews with teachers involved in the evaluation.
**Orbit - Theory of Change**

**Target Audience – Children aged 8-10**
- **GOAL A1**: children are able to identify sexual abuse
  - a) children are able to identify non-touching forms of sexual abuse
  - b) children are able to identify touching forms of sexual abuse
  - c) children are aware of some techniques offenders may use
  - d) children know that sexual abuse can happen to anyone
  - e) children know that sexual abuse offenders can be anyone

**GOAL A2**: children have a support network of trusted adults
- a) children identify 5 trusted adults that are in different parts of their life
- b) children ask 5 trusted adults to be a part of their support network
- c) children & adults further build their rapport through communicating
- d) children know that sexual abuse offenders can be anyone
- e) children know that sexual abuse can happen to anyone
- g) children know that sexual abuse is never the child’s fault

**GOAL A3**: children have a healthy self concept
- a) children understand they have rights: safety, body privacy & respect
- b) children know that sexual abuse is illegal & never their fault
- c) children are able to identify touching forms of sexual abuse
- d) children know that sexual abuse offenders can be anyone
- e) children know that sexual abuse can happen to anyone

**GOAL A4**: children plan what to do if they experience sexual abuse
- a) children disclose child sexual abuse to trusted adults
- b) children recognize the impact of child sexual abuse on those who have been abused
- c) children & adults understand they have rights: safety, body privacy & respect
- d) children know that sexual abuse can happen to any child
- e) children know that sexual abuse offenders can be anyone

**Target Audience – Adults**
- **GOAL B1**: adults can define child sexual abuse
  - a) adults understand what it means to be a part of a child’s support network
  - b) adults understand the impact child sexual abuse can have on individuals who have been abused
  - c) adults understand the impact child sexual abuse can have on families of abused children and their families’ informal support network
  - d) adults understand why it is important to address child sexual abuse

**GOAL B2**: adults recognise the impact of child sexual abuse on those who have been abused, their families, their families’ informal support network and the wider community
- a) adults understand what it means to be a part of a child’s support network
- b) adults know how to proactively address child sexual abuse with children
- c) adults know how to respond to disclosures of child sexual abuse

**GOAL B3**: adults know what they can do about child sexual abuse
- a) adults understand what it means to be a part of a child’s support network
- b) adults know how to proactively address child sexual abuse with children
- c) adults know how to respond to disclosures of child sexual abuse

**Figure 2. Theory of change diagram for Orbit.**
The design of *Orbit* (Jones et al., 2013) and its companion resources such as the *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7) were informed by the teacher perspectives offered in Study 1 as well as the author of this thesis’ own experiences in education as a classroom teacher and teacher advisor for 14 years.

The published outputs from our study include three peer-reviewed academic papers (Scholes et al., 2014; Scholes et al., 2012; Stieler-Hunt et al., 2014), the *Orbit* game (Jones et al., 2013), the *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7), and the *Orbit* website (Stieler-Hunt, Jones, et al., 2013). Table 6 gives an overview of each of these outputs.

<table>
<thead>
<tr>
<th>Published Output</th>
<th>Output type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper 5. The teachers’ role in child sexual abuse prevention programs: Implications for teacher education</td>
<td>Peer reviewed, academic paper featuring conceptual research.</td>
</tr>
<tr>
<td>Paper 6. Serious games for learning: Games-based child sexual abuse prevention in schools</td>
<td>Peer reviewed, academic paper featuring conceptual research and documentation of the creative work’s design process.</td>
</tr>
<tr>
<td>Paper 7. Examining key design decisions involved in developing a serious game for child sexual abuse prevention</td>
<td>Peer reviewed, academic paper featuring conceptual research and documentation of the creative work’s design process.</td>
</tr>
<tr>
<td><em>Orbit</em> game</td>
<td>Non-traditional research output. Creative work.</td>
</tr>
<tr>
<td><em>Orbit Teachers’ Guide</em></td>
<td>Documentation of the creative work and ideas on how to apply the creative work to the classroom.</td>
</tr>
<tr>
<td><em>Orbit</em> website</td>
<td>Documentation of the creative work.</td>
</tr>
</tbody>
</table>

In this thesis, we have used our experiences developing a computer game for schools to suggest how digital game designers can advance the use of digital game-play in the classroom to establish supportive and engaging learning environments. We explain each of our findings and recommendations in the Discussion and Conclusions chapter of this thesis. We provide a summary of our recommendations in Appendix 1.
The Research Need

Digital games have been used in classrooms since the 1970s (Egenfeldt-Nielsen, 2005) although teacher acceptance and use varies (Bourgonjon et al., 2013; Kebritchi, 2010; Kenny & McDaniel, 2011; Takeuchi & Vaala, 2014). Our first study explores the experiences and attitudes of teachers who use digital games in their classrooms (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d). There are primary research studies focussing on teachers’ or pre-service teachers’ attitudes towards, and experiences with, using digital games in the classroom (e.g., Baek, 2008; Beavis et al., 2014; Becker & Jacobsen, 2005; Bourgonjon et al., 2013; Can & Cagiltay, 2006; Hämäläinen & Oksanen, 2014; Kebritchi, 2010; Kennedy-Clark, 2011; Kenny & McDaniel, 2011; Marino, Israel, Beecher, & Basham, 2013; Takeuchi & Vaala, 2014). These studies tend to fall into two main groups. One group focuses on involving a random population of teachers or pre-service teachers, regardless of whether they use digital games in the classroom, to investigate their views on using digital games in classrooms and their experiences with using them (if they have any) (e.g., Baek, 2008; Becker & Jacobsen, 2005; Bourgonjon et al., 2013; Can & Cagiltay, 2006; Kenny & McDaniel, 2011; Takeuchi & Vaala, 2014). The other group tends to recruit teachers or pre-service teachers who may not have used digital game-play in the classroom before. Many only use digital game-play in the classroom to participate in the research study (e.g., Beavis et al., 2014; M. Evans & Barbour, 2007; Hämäläinen & Oksanen, 2014; Kebritchi, 2010; Kennedy-Clark, 2011; Marino et al., 2013). Sometimes the study focuses on the teachers’ or pre-service teachers’ responses towards a particular game that the researchers have developed or want to study (e.g., Hämäläinen & Oksanen, 2014; Kebritchi, 2010; Kennedy-Clark, 2011; Marino et al., 2013), and others study the impact or potential impact of games on classrooms more broadly (e.g., Beavis et al., 2014; M. Evans & Barbour, 2007). In Study 1 (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d) we took a different approach to identifying our participants. We purposefully sought teachers and teacher advisors who had prior experience using digital games in their classrooms. Our participants were not using digital games because they were participating in this research study, rather they participated in this research study because they were already using digital games in the classroom or already advising teachers on their use in the classroom. We
believe that this approach helped us identify and more fully explain phenomena that are not uncovered or understood by other studies.

Scholars indicate that digital games can help students learn (Beavis et al., 2014; Gee, 2008; Kirriemuir & McFarlane, 2004; Klopfer, Osterweil, & Salen, 2009; Van Eck, 2006). The benefits of using digital games in the classroom, though, go beyond learning outcomes and test scores (Beavis et al., 2014; Gee, 2007, 2008; Kirriemuir & McFarlane, 2004; Klopfer et al., 2009). Good digital games immerse students in engaging digital worlds where the players feel their game decisions matter in an environment that feels authentic (Barab, Pettyjohn, Gresalfi, Volk, & Solomou, 2012; Gee, 2008; Kirriemuir & McFarlane, 2004; Salen & Zimmerman, 2003). Our findings in Paper 1 (Stieler-Hunt & Jones, 2015a) and Paper 4 (Stieler-Hunt & Jones, 2015d) support and extend these ideas by suggesting ways teachers can use digital games to build a supportive and engaging learning environment.

Barriers to using digital games in classrooms include negative societal attitudes towards digital games (C. A. Anderson, 2004; Dill & Thill, 2007; E. J. Kim, Namkoong, Ku, & Kim, 2008; Kirriemuir & McFarlane, 2004); teachers not being able to find games that suit their curriculum (Kirriemuir & McFarlane, 2004; Stieler-Hunt & Jones, 2015a, 2015b; Takeuchi & Vaala, 2014); teachers not knowing how to incorporate games into their curriculum (Egenfeldt-Nielsen, 2005); not enough time in the school day (Kirriemuir & McFarlane, 2003); and inadequate access to appropriate hardware and software (Sandford, Ulicsak, Facer, & Rudd, 2006). Further, researchers have found that attitudes of many teachers concur with the general populace, in that they believe that games have a detrimental effect on students’ lives and therefore do not accept that they have a place in the classroom (Bourgonjon et al., 2013; Can & Cagiltay, 2006; Kennedy-Clark, 2011; Rice, 2007b; Rosas et al., 2003). In Paper 2 (Stieler-Hunt & Jones, 2015b) we extend these findings to explore how the negative attitudes of nearby colleagues impact the practices of teachers who want to use digital games in their classrooms.

There are various models to help teachers use digital games within their curriculum. For example, the games as text, games as action model (Beavis, 2014) provides teaching foci for using games in the English curriculum. Rice’s (2007a) video game
cognitive viability index helps teachers calculate a score for the level of higher order thinking associated with playing a digital game. Egenfeldt-Nielsen (2005) provides a theory on how learning occurs through the use of educational computer games based on Kolb and Kolb’s (2005) concept of experiential learning. Gros’ (2007) pedagogical use of videogames in school outlines a method for creating a learning environment in which a digital game is the “starting-point of students’ experience” (p. 33). Our Game Uses Model for Classrooms presented in Paper 4 (Stieler-Hunt & Jones, 2015d) was constructed based on the experiences of our participants’ uses of digital games in the classroom. It aims to make explicit the considerations of teachers who use games successfully in the curriculum. It differentiates itself from models that focus on only one aspect of learning (e.g., Beavis (2014) focuses on English, and Rice (2007a) focuses on Higher Order Thinking) by taking a broad approach encompassing multiple curriculum areas and exploring ways digital game-play can be used to create a supportive and engaging learning environment. Gros’ (2007) model can also be applied to multiple curriculum areas, although it is best suited to simulation-style games played in groups. Whilst this is useful, it does not account for the wide variety of digital games and implementation methods used by teachers in our study. Therefore, our model has a broader focus on how digital game-play can be used within the classroom (Stieler-Hunt & Jones, 2015d).

In Paper 3 (Stieler-Hunt & Jones, 2015c), we present a professional development model to help cohorts of educators within an individual school embrace meaningful use of digital games in their classrooms. Effective professional development for teachers was also the subject of Ketelhut’s (2011) study. The study used two theoretical models of technology integration to compare and discuss the effectiveness of various modes of professional development designed to help teachers use the game River City in their classrooms. Our model (Stieler-Hunt & Jones, 2015c) derived inductively from our participants’ experiences has similarities and differences to the models Ketelhut (2011) describes. Possibly the biggest difference is that our model is designed to be used with complete cohorts of teachers at the one school rather than just small numbers of teachers who volunteer to use the game in question. Our model does, however, address some of Ketelhut’s (2011) recommendations. For example, Ketelhut
(2011) suggests that teachers need to have sufficient time to develop ownership and comfort with the game. Our model achieves this through a collegial planning process, and staggering the roll out of the game, beginning with the most enthusiastic teachers. Also Ketelhut (2011) suggests that successful professional development will provide just in-time support. Our model offers this through the use of a mentor. We believe that our model is a significant contribution to the field and its adoption could greatly assist schools to build the capacity of cohorts of teachers in their use of digital games in their classrooms.

In summary, Study 1 provided us with insights into the opportunities and challenges associated with teachers using digital games in the classrooms. Our two studies were conducted concurrently and our findings from Study 1 influenced Study 2 which centred on the design of a child sexual abuse (CSA) prevention digital game for classrooms. Most teachers participating in Study 1 preferred to repurpose entertainment games rather than use digital games created especially for classroom use. This is because, other than short form drill-and-practice learning games, not many digital games are designed for classroom use, although the number is growing (Ketelhut, 2011). Most of our participants did not want to use short form drill-and-practice learning games because these are not the type of games students choose to play at home and they fail to meet learners’ expectations of digital games (Kirriemuir & McFarlane, 2004).

In Study 2 we discuss the many design considerations that resulted in the development of Orbit (Jones et al., 2013), a CSA prevention game designed specifically for classroom environments that goes beyond short form drill-and-practice, and make recommendations based on our experiences. There are other accounts of designing digital learning games (e.g., Dickey, 2011; Echeverría, 2011; Hämäläinen & Oksanen, 2014; Homer et al., 2014; Marino et al., 2013; Ronimus, Kujala, Tolvanen, & Lyytinen, 2014). However, some of the games are not designed with classroom use in mind (e.g., Homer et al., 2014; Ronimus et al., 2014), many only have a small focus on the process of design with the main focus being on evaluating the effectiveness of the digital game(s) (e.g., Homer et al., 2014; Marino et al., 2013; Ronimus et al., 2014); some do not
make maximum use of the teacher’s role (e.g., Echeverría, 2011; Hämäläinen & Oksanen, 2014); and many feature short form games that take less than 90 minutes to play (e.g., Dickey, 2011; Echeverría, 2011; Hämäläinen & Oksanen, 2014; Homer et al., 2014; Ronimus et al., 2014). We believe that evaluating effectiveness is important but we also believe that there is much to be learned from the design process itself, especially of a more complex, longer-play digital game such as *Orbit* (Jones et al., 2013). A large number of decisions go into the design of any game, therefore understanding these decisions and how they can be made with classroom use in mind, is useful for learning game designers and those who wish to use digital games in the classroom. We present our findings from Study 2 as part of the ongoing discussion on what makes a digital game useful for classroom learning.

**Thesis Overview**

In the current section of this thesis (Section A) we present our two key research questions and an overview of the research subject matter. This is followed by summaries of the research process of our two studies (Study 1 and Study 2) that were conducted concurrently. Next we provide a brief summary of the literature that outlines the rationale for this research.

In Section B we present four papers discussing our findings from Study 1. Paper 1 (Stieler-Hunt & Jones, 2015a) identifies the phenomenon of educators being *believers* in the use of digital games in classrooms and explores the process of *becoming a believer*. It concludes that some educators are overwhelmingly positive that digital games can be used to achieve supportive, engaging learning environments and that the process of *becoming a believer* occurs through a range of personal and professional factors. This leads to Paper 2 (Stieler-Hunt & Jones, 2015b) which explores how some *believer* teachers *feel alienated* from their colleagues in their schools due to their use of digital games in their classrooms. This causes them to alter and sometimes disguise their use of digital games. It indicates that if the acceptance of digital games within the general population of teachers does not increase, education will not realise the full impact that digital games can have on learning in classrooms. This leads to Paper 3 (Stieler-Hunt & Jones, 2015c) where we define and explore our Mentoring Model to
Assist Cohorts of Teachers to Use Digital Games in the Classroom (Mentoring Model). This Mentoring Model was inductively derived from participants who had successfully and unsuccessfully attempted to mentor other teachers in their school in the use of digital games in their classrooms. It provides a list of characteristics required in a successful mentor, an overview of the stages required in the mentoring process beginning with *collegial planning*, and lists the effects of using such a mentoring process. This Mentoring Model can be used in conjunction with our Game Uses Model for Classrooms which is outlined in Paper 4 (Stieler-Hunt & Jones, 2015d). Primarily, it is a planning tool to help teachers richly and elaborately intertwine games into their curriculum. It concludes that this model can help teachers realise the potential of digital games in their classrooms.

Section C contains three papers from Study 2 which relate to the development of *Orbit* (Jones et al., 2013), a child sexual abuse prevention computer game. Paper 5 (Scholes et al., 2012) explores the key considerations for effective child sexual abuse (CSA) prevention programs in schools. We identified five key considerations to guide the selection of effective CSA prevention programs which we incorporate into our discussions in Paper 6 (Scholes et al., 2014) and Paper 7 (Stieler-Hunt et al., 2014). Paper 6 (Scholes et al., 2014) explores attributes of effective school-based CSA prevention programs and begins the discussion on how these can be suitably implemented in a digital game. Finally, Paper 7 (Stieler-Hunt et al., 2014) explores key design decisions in the development of *Orbit* (Jones et al., 2013) and draws conclusions about how digital learning games can be designed to help establish supportive and engaging classroom learning environments.

Section D brings together our findings with discussion and conclusions. In answer to our research questions, it identifies a number of impacting factors and recommendations. The recommendations are aimed at a wide audience including teachers, teacher advisors, school administration teams, schooling systems, game designers, and game publishers. It concludes that if digital games are to take their place alongside other technology-mediated learning environments, we need to use bottom-up and top-down approaches, some of which are described in this thesis, to redress the
stigma associated with using digital games in the classroom. Also game designers need to create more digital games that are designed with the affordances of classrooms in mind.

Several appendices are also included. In Appendix 1 we provide a collated list of impacting factors and recommendations arising from this research. In Appendix 2 a paper is presented (Beavis et al., 2014) that was co-authored with the author of this thesis as part of a large-scale games-in-learning Australian Research Council research project. It is conducted with a different cohort of teachers and although is not a part of Study 1 or Study 2, it is referenced extensively in our Discussions and Conclusions chapter. In Appendix 3 we provide a list of the Orbit (Jones et al., 2013) learning objectives which was co-authored by the author of this thesis and was produced within Study 2. In Appendix 4 we provide a sample research memo that the author wrote during the research process of Study 1. In Appendices 5 and 6 we provide a sample outline of a focus group and play-test conducted in schools during the design and development process of Orbit. These were written by the author of this thesis. In Appendix 7 we provide the Orbit Teachers’ Guide (Stieler-Hunt, Scholes, et al., 2013) which was co-authored by the author of this thesis as part of Study 2.
References for Introduction


games for first and second grade students. *Computers & Education, 40*(1), 71-94. doi: http://dx.doi.org/10.1016/S0360-1315(02)00099-4


Section B.

STUDY 1

ACADEMIC PAPERS
Paper 1.

Educators who Believe: Understanding the Enthusiasm of Teachers who use Digital Games in the Classroom

Colleen Stieler-Hunt and Christian Jones

Published 2015 in Research in Learning Technology, 23. doi: 10.3402/rlt.v23.26155

Notes
1. The paper has been reproduced from the Research in Learning Technology journal with the following modifications: page numbers have been changed to keep them consistent with the rest of this document and the header “Paper 1” has been added to each page.
2. In this manuscript we have used the phrases “becoming a believer” and “being a believer” interchangeably. Since publication of this manuscript and final publication of this thesis we have further refined these terms. “Becoming a believer” is the process that leads to someone “being a believer”.
3. Throughout the research process, we did consider a number of labels for “believers”. After continual analysis, this term resonated with the data. More neutral terms would have failed to get across the division that exists between “believer teachers” and “non-believer teachers”. We do not use this term to indicate that “believers” promotes games in the classroom uncritically, as even in religion, “believers” are diverse, some accept their religion uncritically whilst others question it and are encouraged to question it by those around them. We found that this is the same of games in the classroom. However, the main reason this term resonated with the data is the strength of conviction exhibited by both the “believers” and “non-believers”. There is also substantial evidence in the literature that games have been wrongly exalted as a panacea or “magic bullet” for education (e.g. Bourgonjon et al., 2013) and that this is harming the progression of digital games into mainstream classrooms. The definitions provided within the paper serve to clarify any ambiguity that may occur by using this term.
Educators who believe: understanding the enthusiasm of teachers who use digital games in the classroom

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(Received 29 September 2014; final version received 27 July 2015)

This study used qualitative methods to explore why some educators embrace the use of digital game-play (DGP) in the classroom. The results indicated that these teachers had a very strong belief that DGP could be beneficial for learning which stemmed from experiencing their own form of subjective success with using DGP in the classroom, availing themselves of information and advocacy about using DGP in the classroom and personal experiences with DGP either through their own DGP or through watching their own children play games. They also shared positive attitudes towards information and communication technologies generally and had initially been invited to use DGP in the classroom by someone in authority. Their use of DGP was also something that they felt made them different to other teachers. Applying these findings to Rogers’ Diffusion of Innovations theory predicted that the diffusion rate of using DGP in the classroom will continue to be slow. Finally, this study indicates that teachers need to experience their own form of subjective ‘success’ in order to find DGP valuable and this subjective ‘success’ often goes beyond test score performance.

Keywords: game-based learning; video games; elementary education; secondary education; educational beliefs; pedagogical issues

1. Introduction

Worldwide, there are many initiatives that encourage teachers to use digital games (DGs) in primary and secondary school classrooms (see Chee 2012; Department of Education and Early Childhood Development (Victoria) 2013; Haas 2008; McFarlane, Sparrowhawk, and Heald 2002; Microsoft Research 2010; Queensland Government 2008; Scottish Government 2014a, 2014b; The Joan Ganz Cooney Center 2014a, 2014b; Zagami 2012). The state education department of Queensland, Australia ran a games in learning program encompassing four overlapping strands: digital game-play (DGP), game-study, game-making and game innovation (Queensland Government 2008). This research is focused on DGP.

For the purpose of this study, we will define a game as ‘a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome’ (Salen and Zimmerman 2003). By DGs, we mean any game that uses electronic hardware to deliver some or all of the game. This includes video games played on
home and handheld consoles, PC games, web-games, mobile phone games and games such as alternate reality games that blend the analogue and digital worlds. DGP refers to the act of participating in a DG.

Although views vary on the value of using DGP in the classroom (Kirriemuir and McFarlane 2004), proponents believe that DGP can promote deep learning (Gee 2008), can effectively support learning and, further, the educational advantages afforded by thoughtfully selected and effectively used DGP warrant consideration for all classrooms (Van Eck 2006). This paper explores one theme that emerged from qualitative research into the experiences of teachers using DGP in the classroom: Why do some educators embrace DGP in the classroom? It responds to Bourgonjon et al. (2013)’s call for qualitative research that focuses on teachers with experience using DGP in the classroom.

2. Method

The data used for this study were in-depth, semi-structured interviews which ranged from 1 to 2 hours in duration and were conducted with 13 (eight female, five male) educators that have used DGP in the classroom. All participants interviewed had worked within the educational system of Queensland, Australia. A convenience sample was used whereby potential participants responded to an invitation sent to a Queensland-based games in learning email list or were approached through professional networks. Where possible and practical, the order of the interviews was guided by Theoretical Sampling. That is, we chose subsequent participants with the intent to answer questions we had about concepts emerging from analysis of the existing data (Corbin and Strauss 2008). The educators were in different stages of their educational careers from beginning teachers to retirees to educational advisors, and from diverse educational settings ranging from primary schools to secondary schools, mainstream to special education, rural to urban environments, and private to government schools. Eight of the participants were regular classroom teachers in primary or secondary schools. Five of the participants were working in advisory capacities within the Queensland state government education department, and of these all but one started using games in learning when based at a school. The semi-structured interviews were loosely based on an interview guide that explored participants’ beliefs about learning, how they have used ICT in learning more broadly, their beliefs about using DGs for student learning and how they have used DGs for student learning.

Interviews were audio recorded, transcribed and analysed using nVivo Computer-Assisted Qualitative Data Analysis Software. Using a Grounded Theory approach, a variety of coding methods and analytical tools were dynamically and flexibly used on the interviews including attribute coding, open-ended, initial coding, subcoding, theming the data, pattern coding, axial coding, theoretical coding, code weaving, theorising (Saldana 2012), the conditional/consequential matrix and the Paradigm (Corbin and Strauss 2008). We used Theoretical Sampling to guide our data analysis (Corbin and Strauss 2008). That is, questions about an emerging research concept guided the selection of the next set of data to be analysed or re-analysed.

The analysis concluded after reaching Theoretical Saturation (Corbin and Strauss 2008). That is, the ‘Being a Believer’ process had considerable depth and breadth and the relationships between ‘Being a Believer’ and other key concepts were clear (Auerbach and Silverstein 2003; Corbin and Strauss 2008).
Our study offers a shared understanding built between researchers and participants (Kvale and Brinkmann 2009) produced by participants articulating and reflecting on their experiences. We aimed to discover insights and themes about the daily experiences of teachers who have used DGP in the classroom.

To preserve anonymity, this paper does not use participants’ real names. Instead pseudonyms generated by a random name generator are used.

Within this paper we have used the convention of *italics* to denote categories, subcategories and concepts identified during analysis. Quotations from participants are set as ‘extract text’. Definitions are set in ‘single quote’.

3. Results and discussion

Analysis of the interview data indicated that educators who embraced DGP did so because they believed in the power of using DGP in the classroom. Figure 1 shows the process of *becoming a believer*.

This belief resulted from their success with using DGP in the classroom (see Section 3.1), accessing information and advocacy for using DGP in learning (see Section 3.2) and their personal experiences with DGP (see Section 3.3). These experiences led to them *valuing DGP* (see Section 3.4). Having positive attitudes towards technology generally (see Section 3.5) and having someone invite them to use DGP in the classroom (see Section 3.6) also facilitated adoption. Many educators feel that *being a believer* sets them apart from their colleagues (see Section 3.7). We explore these findings in terms of Rogers’ (2003) five characteristics of innovation to examine impeding and facilitating factors for the diffusion rate of the use of DGP in classrooms (see Section 3.8).

We define the term *believer* as ‘a person who is persuaded that using DGP in the classroom can be beneficial for learning’.

*It’s always been something I believe in.* (Bernita, secondary school teacher)

*[Using DGP] was much better than anything we . . . could have come up with . . . the kids just [get] excited.* (Jennifer, primary school teacher)

Figure 1.  Key themes and relationships to explain the process of *becoming a believer* in DGP in the classroom.
3.1. Success with DGP

As highlighted in Figure 2, success with DGP began when educators established meaningful links between their class’s context, their curricula and the game-play of one or more DGs. The subsequent implementation of DGP in their classroom was both enjoyable and successful and led the educator to feel a professional connection to playing DGs in the classroom.

We define establishing meaningful links between class context and DGs as ‘to bring about a significant connection generally during the planning phases between the characteristics of the student cohort (class context) and characteristics of DGP of one or more DGs’. Further, this ‘significant connection’ required the teachers to be discerning in their choice of DGs. It was not the case that any DG would have done the job, it was that the teachers specifically chose a game because it suited their curriculum and their teaching context. The games chosen ranged from full body movement games to virtual worlds (both those focused on entertainment and education), to simulation games, to car racing games, to learning games. Generally, games with an Australian ‘Mature’ classification or above were not used. These next quotes show how teachers saw the link between the characteristics of their student cohort and DGP.

I was given a rather interesting class of boys at <location removed> and ahhh, the nature of rural kids is that they can be a bit rough I guess and umm, I ended up having to basically turn away from the original curriculum that we had planned because the boys just weren’t going to be interested… (Miles, secondary school teacher)

We’re a National Partnerships’ School and I suppose, we are always looking at ways to engage the kids. Cos we have high indigenous population, high level of special needs kids and gaming is just something the kids love. (Jennifer, primary school teacher)

Note: National Partnerships’ Schools were identified as having low socio-economic status and lower literacy and numeracy levels (Australian Government 2014).

Further, the teacher was also able to demonstrate establishing meaningful links between curricula and DGs which we define as ‘to bring about a significant connection generally during the planning phases between curriculum frameworks developed by
education bodies, perceived needs of their student population or the school community’s collective beliefs about learning (curricula) and characteristics or elements of DGP of one or more DGs’.

... one of the teachers at school was looking in a gaming magazine and she saw Viva Pinata ... it seemed to match exactly what we were trying to achieve, the kind of knowledge and understanding we want kids to have and the kind of umm, sensitivity around flora and fauna and how they umm, you know inhabit spaces in biomes and how you upset one, you upset the other ... (Esta, primary school Head of Curriculum)

After establishing meaningful links between their class’s context, their curricula and one or more digital games, believers implemented DGP in the classroom and felt successful in their use of DGP, they also personally enjoyed the experience of using DGP in the classroom. As indicated by the two-way arrows in Figure 2, the success and enjoyment the teachers felt was not only a result of how they implemented DGP in the classroom but it also made them more willing to use them again in the future.

We define the educator feeling successful with their implementation of DGP in the classroom as ‘the teacher perceiving that a desirable or favourable outcome was achieved as a result of the way they used DGP in their classroom’.

I had students who would write just basically ... one or two sentence answers but I found that after they’d been in ... Quest Atlantis it was like they’d been on an excursion ... and then when they came back out ... and put themselves to paper to try and answer the question ... they could tell, like a real story. It was like they could recount an excursion that they’d been on and they could explain their answers in a lot more depth ... they were explaining it to you not just for the sake of putting an answer down but for telling you what they’d seen. (Linn, primary school teacher)

... and they’d start communicating and getting along better by talking about how they’d learnt how to play this or how to do this and it came through in their journals ... [A male student] said he’d never actually talked to this other student in this class until he’d actually, you know, told him how to play this part of a game; and that was another side-benefit of it in terms of, especially bullying. I started to see things like when kids would play things together ... and they had to work together to solve it. All of a sudden, the pay-outs would stop, the sarcasm would stop... (Miles, secondary school teacher)

These subjective views of success were a result of the teacher’s purposeful selection and use of DGs and these feelings of success were not related to the use of a particular genre of DG. Believer teachers also reported that they personally enjoyed teaching using DGP; it was personally fulfilling in ways that their other teaching experiences were not. We define the educator experiencing enjoyment in their implementation of DGP in the classroom as ‘the teacher finding pleasure in how they used DGP in the classroom’.

I’m very grateful for it, it’s probably the first thing I’ve had that I can really dig my teeth into. (Miles, secondary school teacher)

I think it’s brought a lot more enjoyment for both teacher and student. (Minnie, primary school teacher)

This perceived success of using DGP is the main contributor to the educator connecting professionally to DGP. We define connecting professionally as ‘establishing links between DGP, something that may normally be seen only as a fun pastime, with the duties of being a teacher’.
3.2. Accessing information and advocacy

Another contributor to connecting professionally was accessing information and advocacy as highlighted in Figure 3. The teachers in this study accessed information and advocacy as provided by the schooling system (e.g. special games in learning projects, curriculum documents) and professional associations and through reading research. Not only did accessing information and advocacy make the teacher feel more professionally connected to DGP but also educators who had successfully used DGP in the classroom were more likely to access this information and advocacy. We define accessing information and advocacy as ‘availing themselves of knowledge about and in-support of using DGP in the classroom’.

I’m heartened by the fact that you can look in the English curriculum and games are mentioned. That’s exciting to me. When there’s actually ... an educational authority who’s saying we want kids to be engaged in popular cultural text and we think that games are a valuable example of that, that’s exciting ... It’s in black and white, it’s in a curriculum document. (Esta, primary school Head of Curriculum)

Once I started to look at the Games in Learning Framework, as outlined by EQ [Education Queensland] it was quite comprehensive and there was parts where I could see English just fit, like especially the game-study component, I mean, you’re looking at the issues, the, nature of the game as a text. (Miles, secondary school teacher)

3.3. Personal experience with games

Educators who identified as being a believer in DGP had a personal connection to DGP. Several reported being gamers themselves whilst others reported that their personal connection came from watching their own children play DGs as highlighted in Figure 4. We define personal connection as ‘the teachers’ knowledge and experience of DGs from their private life has led them to believe that DGP would be useful in their classroom’.

A teacher identifying as a gamer explained that this perspective gave him a good understanding of and respect for DGP:

![Diagram](Figure 3. Accessing information and advocacy contributed to connecting professionally.)
I’m one of those few teachers who has the advantage that I’m an avid gamer as well as an English teacher and I really loved, I saw the potential of what games could do in a classroom, especially a class where . . . a lot of kids are disengaged. (Miles, secondary school teacher)

More educators reported their personal interest in DGP stemmed from either playing them with their own children or watching their own children play games.

It doesn’t hurt that I have young sons and see the benefits of . . . games on a daily basis outside the context of learning. So it was really easy for me to see the power that games would have if embedded in a really rich way in the curriculum. (Esta, primary school Head of Curriculum)

3.4. Valuing DGP

The educators’ previous personal and professional experiences combine in such a way that they value DGP. The merits that these educators see in DGP is that they have educational potential and are motivating and interesting for students. Further, as the teachers’ valuing of DGP grows, it makes them more interested in using DGP in the classroom and vice versa as highlighted in Figure 5. We define valuing DGP as ‘believing that there are merits to using DGP in the classroom’.

One of the main merits of using DGP is that believer teachers think DGP has educational potential if selected discerningly and used appropriately. We define educational potential as ‘capable of being useful for learning’. Primary school teacher Jennifer explains that there is educational potential in DGP despite the way they are sometimes used in classrooms, . . . gaming is just something the kids love, and I am really interested in it. However, I’m really interested in it from the educational point of view, not just from sticking kids on the game to give them some time out.

Teachers also valued DGP because DGP inspires student motivation and student interest. We define student motivation as ‘DGs foster a desire to play in students’ and student interest as ‘DGP captures students’ attention and curiosity’.
Secondary school teacher Milly observed how motivated by and interested in DGP her students were:

_I had kids lining up at the door waiting for me to turn up . . . and they love it._

The teacher’s value of DGP leads to the teacher also being interested in using DGP in the classroom. We define being interested as ‘the teacher is invested in using DGP in the classroom’.

_I’ve always been interested in bringing it into English and I’d seen similar subjects . . . taught at other schools._ (Miles, secondary school teacher)

### 3.5. Positive attitudes towards technology

All believers interviewed indicated that they saw themselves as an _educational technology innovator or enthusiast_ as highlighted in Figure 6.

We define _educational technology innovator or enthusiast_ as ‘the teacher views themselves as someone who wants to use digital technologies to change how things are done in their own teaching as well as being ardently attached to using digital technologies in their own teaching. They also think other teachers should feel the same way’.

_Yeah, I like technology, love it, umm, and if you can suit it to the curriculum that you’re teaching, umm, more so because the kids really do take it on-board much more._ (Jennifer, primary school teacher)

### 3.6. Invitation to use games in the classroom

Another significant factor was that many believers started using DGP in their classroom because someone invited them to do so, whether it be someone from a university or someone from higher up in their schooling system. Therefore, we define _being invited_ as ‘a person seen to be in a position of higher knowledge suggests or asks the school/teacher to participate in a DGP project or use DGP in the curriculum’ This is highlighted in figure 7.
I was actually approached by <<name>> who is actually an ICT [Information Communication Technology] consultant of some sort now in EQ but she pointed out the Games in Learning project and asked if I'd like to be involved. (Miles, secondary school teacher)

... we started with a console that was given to us by umm an ICT facilitator of the time for our district ... So when we were offered the opportunity to look at ways to use ... games in the curriculum, we embraced that. Umm, so that was the start of our journey. (Esta, primary school Head of Curriculum)

3.7. Being different to non-believing colleagues

Those who were strong believers saw themselves as being different to the majority of their colleagues because they could see the potential for using DGP in the classroom where others could not.

Figure 6. Identifying as an Educational Technology Innovator or Enthusiast is a necessary condition of being a believer in using DGP in the classroom.

Figure 7. Most teachers who were believers in using DGP in the classroom were initially invited to use DGP by someone seen to be in a position of higher knowledge.
People who don’t play games don’t see that [games have educational potential], because they just view it as this old button-mashing . . . time waster of the past, let alone something you might actually learn from. (Miles, secondary school teacher)

They [my colleagues] would be very, very nice and say . . . ‘You were into that sort of thing’ . . . or, ‘I’m a bit too old for that sort of stuff’. All of the comments that they made in a light-hearted way were ways of saying well, ‘I’m a traditional teacher and there’s no way known that [students playing games] would happen in my classroom.’ (Bernita, secondary school teacher)

Some also felt that it had a renewing effect on their teaching practice.

. . . if I had never actually applied [to a games in learning trial], yeah, I don’t know . . . I just find that that just opened a whole, new world for me to become. So, I guess, it remotivated and re-invent[-ed] things that I’d been doing the same way . . . I think it’s brought a lot more enjoyment for both teacher and student. (Minnie, primary school teacher)

3.8. Implications for the rate of diffusion of the use of DGs in classrooms

In this section we use Rogers’ (2003) Diffusion of Innovations theory to explore the implications of this study for the rate of diffusion of the use of DGP in classrooms. Rogers’ (2003) Diffusion of Innovations theory is useful to predict and account for factors impeding or facilitating the diffusion of instructional technologies such as DGs (Kebritchi 2010; Surry and Farquhar 1997). Rogers (2003) describes five ‘characteristics of innovations, as perceived by individuals’ to help explain adoption rates. These characteristics are (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability and (5) observability.

Relative advantage describes the degree to which the innovation is perceived to be better than what it supersedes. This may be measured in economic terms, social prestige, convenience or satisfaction. The greater the perceived relative advantage, the greater the speed of adoption (Rogers 2003). In this study, believer teachers’ feelings of subjective success (feeling successful) and their own feelings of enjoyment whilst using DGP in their classroom (experiencing enjoyment) led them to feel satisfied with their use of DGP. Further, those that were invited by someone in a perceived knowledgeable position (being invited) to use DGP in the classroom could also feel a degree of social prestige as a result of their work. Therefore for believer teachers the perceived relative advantage of using DGP in the curriculum is high, and the degree to which other teachers would perceive this same relative advantage would rely on their ability to comprehend and experience similar feelings of success and enjoyment. We postulate, therefore, that believer teachers who are able to help other teachers experience their own feelings of subjective success and enjoyment, will be more likely to succeed in furthering the use of DGP in their schools.

Compatibility refers to the degree to which the innovation is perceived to be consistent with current values, views and needs (Rogers 2003). Believer teachers find that using DGP is consistent with their current values, views and needs as evidenced by their valuing of DGP in terms of its educational potential, student motivation and student interest. However, many believer teachers also report seeing themselves as being different from the majority of their colleagues in their perceptions of the potential of DGP for the classroom. Therefore, this indicates that the perceived level of compatibility for DGP in the classroom is low for many teachers.
Complexity refers to the degree to which the innovation is perceived as difficult to understand or use (Rogers 2003). There are two main elements of using DGP in the curriculum that may cause difficulties for educators. Firstly, there can be difficulties using gaming technologies within school infrastructure (e.g. obtaining and using suitable hardware and software). As believer teachers tend to identify as an ED tech innovator/enthusiast they are more likely than the general teaching populace to be able to navigate technical issues. Secondly, educators need to establish meaningful links between DGP, curricula and class context. Even believer teachers find that these links can be difficult to establish. Therefore, the perceived level of complexity for using DGP in the classroom can be a significant barrier to using DGP in classrooms.

Trialability refers to the degree to which an innovation can be adopted on a limited basis prior to final adoption (Rogers 2003). DGP can be easy to trial and believer teachers describe adopting DGP in limited ways before using them in a more permanent way post-trial. However, some DGs can have licensing or hosting challenges which can limit trialability.

Observability refers to the degree to which results of the innovation are visible to others (Rogers 2003). Unfortunately the believer teachers’ successes (feeling successful) with DGP are subjective and not always easily visible to others. For example, believer teachers report that using DGP in the classroom unites the class and provides unexpected motivation. Whilst these are very useful for learning in a classroom setting, they are not easily observable by others.

Rogers’ (2003) five characteristics of innovation indicate that the rate of diffusion of using DGP in the classroom will continue to be slow until: (1) there is an improvement in teachers’ perceptions of the relative advantage of using DGP in the classroom, (2) the observability of positive results of using DGP in the classroom is increased, (3) the use of DGP in the classroom is made less complex as well as (4) easier to trial and (5) more teachers value the role DGP can have in the classroom.

4. Conclusions

Our study has presented the perspective of educators who embraced DGP for which we used the term believers. Similar to our study, Becker (2007) described teachers who had been ‘won over’ to using DGs in the classroom as ‘converts’.

4.1. Teachers who believe DGP is valuable for their classroom are more likely to use DGP in their classroom

This study suggests that teachers with a strong belief in the value of DGP for student learning will be more likely to use DGP in their classrooms. Therefore, challenging prevailing teacher attitudes and beliefs towards DGP could lead to an increase in adoption in mainstream classrooms. Similarly, Bourgonjon et al. (2013) found that teachers’ perception that DGP was relevant to their practice was crucial for game adoption, therefore they suggest that teacher professional development focus on teacher attitudes before delving into practicalities. Several studies (Can and Cagiltay 2006; Rice 2007; Rosas et al. 2003) found the converse to be true, that teachers’ negative perceptions of DGP were a significant barrier to adoption. Therefore, teachers’ attitudes towards DGP need to be addressed before addressing the practicalities of using them in a classroom.
4.2. Being a parent affects teachers’ attitude towards using DGP in the classroom

Belief in DGP came from both a personal and professional connection to DGP. The personal connection tended to come through teachers’ own children playing DGs although some teachers were DG-players themselves. This study found that believer teachers who were also parents took an active interest in their own children’s DGP experiences and this contributed to them valuing the way DGP could be used in classrooms. Literature focuses on teachers’ personal DGP experiences (Becker and Jacobsen 2005; Bourgonjon et al. 2013; Kenny and McDaniel 2011), rather than their experiences as parents. There is conflicting evidence on whether teachers’ DGP experience impacts acceptance of DGP in the classroom. For example, Becker and Jacobsen (2005) found no statistical relationship between teachers’ game playing habits and their intention to use games in the classroom whereas Bourgonjon et al. (2013) found that DGP experience was a weak predictor for teachers’ intentions to use DGP in the classroom. These studies did not explore how teachers’ parental role may impact their perception of the value of DGP in the classroom. Since this is not an area other literature has commonly explored, it warrants further investigation. Our study suggests that teachers who are also parents and take an active interest in their children’s DGP will be more likely to have positive attitudes towards using DGP in the classroom.

4.3. Integrating DGP learning support materials within mainstream and ‘official’ channels will ensure more teachers consider using DGP

The professional connection to DGP partly came from the teachers actively seeking information and advocacy on learning involving DGP. Similarly, Becker and Jacobsen (2005) found that teachers perceived that their own efforts to implement learnings from DGP professional development sessions facilitated their use of DGP, whilst Baek (2008) found that teachers identified having inadequate access to support materials as a barrier for using DGP in the classroom. This may explain why the use of DGP in the classroom is not more widespread. Whilst there are professional resources/support materials available to assist teachers to use DGP in the classroom, only the most motivated teachers, such as those participating in this study, are able to find them. Therefore, we recommend that to further increase adoption, DGP learning support materials be integrated throughout the more mainstream and ‘official’ channels that everyday teachers use for curriculum planning. This includes teaching resources provided by education systems as well as other educational networks.

4.4. The importance of identifying as an educational technology innovator/enthusiast

Our study suggests that self-identifying as an educational technology innovator/enthusiast was a necessary condition for developing strong beliefs in the value of DGP in the classroom. That is not to say, however, that all teachers identifying as educational technology innovators/enthusiasts will be strong believers in DGP. Bourgonjon et al. (2013) found that the construct ‘personal innovativeness’ did have a statistically significant but weak impact on teachers’ acceptance of DGP, but other factors were more important. They concluded therefore, that attempts to market DGP to teachers as a technological panacea for the classroom would not be effective. This indicates it may be more effective to focus advocacy and DGP learning information on teachers who already use forms of technology other than games, rather than focus on those who do not use technologies.
4.5. Teachers experiencing their own form of subjective ‘success’ are more likely to want to use DGP again

Believer teachers felt they experienced subjective success when using DGP in the classroom. Similarly, several studies (Becker and Jacobsen 2005; Marino et al. 2013; Rosas et al. 2003) found that teachers’ acceptance of DGP in the classroom increased after teachers had used them. None of these studies examined what might happen if a teacher felt that their experience with using DGP was an unsuccessful one. It is evident, however, that teachers in Marino et al. (2013)’s study felt their use of DGP had been successful. For example, teachers in the Marino et al. (2013)’s study believed that the DG prompted more social learning to occur and they felt that it worked well for students who didn’t perform well with traditional teaching. This suggests therefore, that in order for teachers to accept DGP, they should be introduced to DGP in a manner that they are most likely to experience success, and in terms that are meaningful to them. Furthermore, as success with DGP in the classroom is subjective, and possibly highly personal and dependent on the class context, teachers should consider how DGP may be able to address classroom needs beyond test scores. This has some similarities to findings in Orlando (2014)’s longitudinal study of classroom teachers and their propensity to change practices using information and communication technologies. She found that teachers are more likely to change their practices towards the use of information and communication technologies if it can be used to ‘meaningfully respond’ to their personal teaching context and resonate with how they personally see their teaching role.

5. Limitations

Since this is a small-scale study based on 13 teachers within Queensland, Australia, more research should be undertaken in other settings and locations. However it does suggest researchers and professional development for teachers must focus on teachers’ attitudes to DGP and how they can be used to achieve personal success within their class context.

References


Feeling Alienated: Teachers Feel Persecuted for Using Immersive Digital Games in Classrooms

Colleen Stieler-Hunt and Christian Jones

Under review for journal publication.

Abstract

Significant barriers to using digital games in classrooms still exist despite evidence to indicate digital games can enhance academic achievement. A key finding of this qualitative study is that teachers who use immersive digital games (IDGs) in the classroom can experience varying degrees of alienation from their teaching colleagues. Many teachers using digital games in the classroom are, at best, working in a silo with little influence on the practices of others and, at worst, feeling persecuted by nearby colleagues because of their use of IDGs. This paper presents a model of the process of feeling alienated experienced by some educators using IDGs in their classrooms. Whilst negative teacher attitudes towards the use of IDGs in the classroom persist, it will be difficult for IDGs to become used in mainstream teaching practice and the potential impact of IDGs in the classroom will not be fully realised.

Keywords: game-based learning; video games; elementary education; secondary education; educational beliefs; pedagogical issues

Introduction

Digital games have been used in classrooms since the 1970s with some of the most successful early educational titles being Oregon Trail and Lemonade Stand (Egenfeldt-Nielsen, 2005). In the late 1980s there was a swing towards edutainment, short-form games featuring game mechanics largely based on learning by repetition, also known as drill-for-skill games (Egenfeldt-Nielsen, 2005; Kirkley, Kirkley, & Heneghan, 2007;
Although digital games in the entertainment sphere have become more complex, immersive, and engaging, the types of games predominantly used in schools continue to be edutainment games and these are not the sorts of games that children would choose to play in their free time (Kirriemuir & McFarlane, 2004; Takeuchi & Vaala, 2014). More immersive, complex, and engaging games are being designed for classrooms, but they are not used in classrooms as commonly as edutainment style games (Takeuchi & Vaala, 2014). In this paper, we will use the term immersive digital games (IDGs) to refer to digital games that are more likely to involve the player in deep exploration and have them participate in activities that vary greatly from didactic instruction (Takeuchi & Vaala, 2014). \textit{Lure of the Labyrinth} (Maryland Public Television, 2009) and \textit{Orbit} (Stieler-Hunt, Jones, & Rolfe, & Pozzebon, 2014; Jones, Stieler-Hunt, & Rolfe, 2013) are examples of IDGs. The use of IDGs in classrooms may refer to the repurposing of games primarily created for entertainment purposes as well as using more complex and engaging digital games designed specifically for classrooms.

The benefits of using digital games in the curriculum have been well documented in the literature. Teachers who have used IDGs in classrooms have found that the game-play can unite the class by developing affinity between students and providing unexpected student motivation and focus that can inspire students to build deep knowledge that can be applied to new contexts (Gee, 2003; Stieler-Hunt & Jones, 2015b). Further, using IDGs in their classrooms shows students that the education system values their real life experiences (Gee, 2003). These benefits can enhance academic achievement. For example, positive social relationships between class members have been linked to higher motivation levels (Goodenow, 1993) and higher levels of academic achievement (Wentzel, 1998). Further, using popular culture in teaching can raise students’ motivation levels and understanding (Cheung, 2001; Chik, 2011; Duncan-Andrade, 2004; Giroux & Simon, 1988). In addition, games also provide players with opportunities to fashion and experiment with identities and choose the amount of effort they wish to expend in a low consequence environment (Gee, 2008; Klopfer, Osterweil, & Salen, 2009) that nevertheless feels authentic (Barab, Pettyjohn, Gresalfi, Volk, & Solomou, 2012). Educators and researchers alike see the appeal in harnessing these features to engender better learning in classrooms (Stieler-Hunt &
An example of a drill-for-skill game is *Meteor Multiplication* (Arcademic Skill Builders, 2016).

The literature has also documented the barriers to using digital games in classrooms. Commonly cited barriers include difficulties matching games to the curriculum (Kirriemuir & McFarlane, 2004; Takeuchi & Vaala, 2014), insufficient access to adequate software and hardware (Sandford, Ulicsak, Facer, & Rudd, 2006), negative views on games (Anderson, 2004; Dietz, 1998; Dill & Thill, 2007; Fisher, 1994; Grüsser, Thalemann, & Griffiths, 2007; Ivory, 2006; Kim, Namkoong, Ku, & Kim, 2008; Kirriemuir & McFarlane, 2004), and insufficient time in the school day (Kirriemuir & McFarlane, 2003).

This paper presents a model of the process of feeling alienated experienced by some educators using IDGs in their classrooms. The model emerged from qualitative research into the experiences of teachers using IDGs in their classrooms. A key finding was that teachers receiving little to no support from within their school community in their use of IDGs, experienced varying degrees of alienation which had impacts on their teaching practices and their career. This paper also explores the impact these findings have on the adoption of IDGs for teaching and learning. This research responds to Bourgonjon, De Smet, Van Looy, Soetaert and Valcke’s (2013) call for qualitative research that focuses on teachers with game-based learning experience.

**Method**

*a) Study overview*

This study purports an interpretive understanding of the experiences of teachers who have used IDGs in the classroom. Our research employed an inductive grounded theory approach (Corbin & Strauss, 2008) in which we conducted semi-structured interviews with teachers about how they have used digital games in their classrooms, their general beliefs about learning, and the support structures they work within. We used qualitative data-analysis techniques from grounded theory (Charmaz, 2006; Corbin & Strauss, 2008; Saldaña, 2012). We aimed to discover insights and themes about the daily experiences of teachers who have used IDGs in the classroom.
b) Participants

Thirteen educators participated in this study (8 female, 5 male). All participants interviewed had experience using digital games in the classroom and had worked within the educational system of Queensland, Australia. A convenience sample was used. Participants responded to an invitation sent to a Queensland-based games-in-learning email list or were approached directly by the researchers because they were known within their professional networks. The educators were in different stages of their educational careers from beginning teachers to retirees to educational advisors, and from diverse educational settings ranging from primary schools to secondary schools, mainstream to special education, rural to urban environments, and private to government schools. Eight of the participants were regular classroom teachers in primary or secondary schools. Five of the participants were working in advisory capacities within the Queensland State Government Education Department, and of these all but one started using digital games in learning when based at a school. The teachers volunteering for this study were using digital games in the classroom before participating in this study.

c) Interview procedures

The data used for this study were in-depth, semi-structured interviews which ranged from one to two hours in duration. The semi-structured interviews were loosely based on an interview guide that explored participants’ beliefs about learning, how they have used ICT in learning more broadly, their beliefs about using digital games for student learning, and how they have used digital games for student learning.

d) Data analysis procedures

Interviews were audio recorded and transcribed. Version 10 of QSR International’s NVivo Qualitative Data Analysis Software (2012) was used to manage the audio recordings, transcriptions, and analysis process. Where possible we commenced analysis on existing data prior to collecting more data so that the analysis could be used to guide the next data collection, a process known as theoretical sampling (Auerbach & Silverstein, 2003; Corbin & Strauss, 2008). Firstly we used the initial coding analysis technique to generate concepts (Saldaña, 2012). Then we purposefully
used a variety of analytic tools and strategies designed to immerse the researcher in the data to find the essence of what the participants were conveying (Corbin & Strauss, 2008). This resulted in the emergence of the feeling alienated category from the data. Analytical tools and strategies that were flexibly and dynamically applied to the data included attribute coding, open-ended coding, subcoding, theming the data, pattern coding, axial coding, theoretical coding, code weaving, theorising (Saldaña, 2012), the conditional/consequential matrix, and the paradigm (Corbin & Strauss, 2008) until the model for feeling alienated emerged. The analysis concluded after reaching theoretical saturation (Corbin & Strauss, 2008). That is, the feeling alienated category had considerable depth and breadth and the relationships between feeling alienated and other key concepts were clear (Auerbach & Silverstein, 2003; Corbin & Strauss, 2008).

e) Conventions used in the paper
To preserve anonymity, this paper does not use participants’ real names. Instead pseudonyms generated by a random name generator are used.

Within this paper we have used the convention of italics to denote categories and concepts identified during analysis. Quotations from participants are indicated by the indented quotation style. Definitions are in “quotation marks”.

Findings

In this section we explore the process of how and why some teachers feel alienated from nearby teaching colleagues for using immersive digital games (IDGs) in their curriculum and how this impacts their teaching practices. We define feeling alienated as “conscious that their views on using IDGs in the classroom keep them somewhat intellectually and sometimes socially separated from their colleagues” and we define nearby colleagues as teachers who are at the same school. Figure 1 provides an overview of the process of feeling alienated. Some of our participants perceived that teaching colleagues in their school had negative opinions towards the use of IDGs in classrooms. Whenever we refer to negative attitudes of nearby colleagues, we are discussing this in terms of our participants’ perceptions only. It was outside the scope of this study to gauge the actual attitudes of our participants’ colleagues.
The circle at the core of Figure 1 represents the issues influencing the lone believer and their responses to these issues. The middle circle outlines relevant influences over the lone believer’s nearby unbeliever colleagues. The outsides circle reflects the broader education community which includes the school community and the milieu within which the lone believer and the nearby unbeliever colleagues operate. Within the broader education community we refer only to segments of that community that emerged from our data as being meaningful to explain the feeling alienated phenomenon, namely students, school, and the schooling system, and researchers and professional associations.

Figure 1. Model representing the process of feeling alienated.

Within the diagram we have indicated factors that predominantly enable the use of IDGs in the curriculum with a rectangular border and those that are predominantly barriers to the use of IDGs in the curriculum with a hexagonal border.
Further, the arrows pointing towards our main concept explain the causes of feeling alienated and the arrows leading away from our main concept describe the effects of feeling alienated.

The following sections unpack the process of feeling alienated as depicted in Figure 1. We begin by describing (a) the lone believer, then we explore the (b) clash of beliefs between the lone believer and nearby unbelieving colleagues that begins the process of feeling alienated. This leads us to discuss c) the cycle of resentment this provokes. We then outline how d) curriculum and classroom concerns and e) inadequate advocacy also contribute to the lone believer feeling alienated. Finally, we examine f) the compromising and evading tactics the lone believer employs in response to feeling alienated.

a) The lone believer

Teachers who use digital games in the classroom can experience varying degrees of alienation from their nearby teaching colleagues. If there are very few (if any) teachers at a school using IDGs in their own teaching practices, then the degree of alienation is likely to be greater. We have labelled this category of teachers as the lone believer. The term believer (Stieler-Hunt & Jones, 2015a) is used because these teachers tend to be extremely passionate about their use of IDGs and tend to have an almost religious fervour about their use. The lone believer can be defined as “an educator who is persuaded that using IDGs in the classroom can be beneficial for learning and feels that this belief somehow keeps them apart from most if not all of their nearby colleagues”.

It’s always been something I believe in… [Other teachers] would be very, very nice and say… “I’m a bit too old for that sort of stuff”.

(Bernita, secondary school teacher)

[Using games is] something I’ve had to do on my own… (Linn, primary school teacher)

Further, teachers using digital learning games traditionally associated with classrooms (e.g., short-play games such as drill-and-practice games) did not report experiences of alienation. However, it was not uncommon for enthusiastic believers to have a strong dislike of what is seen as a traditional classroom learning game:
No, I'm not a big fan of the overt, slap you in the face, this is the outcome that you will definitely get at the end of this game, and I think kids know the difference… so I'm not necessarily a fan of educational games. I think that a lot of them are pretty lame actually. (Esta, primary school head of curriculum)

Next, we explore the forces at play in the lone believer's professional life that lead them to feeling alienated.

b) Clash of beliefs

Differences in beliefs between unbelieving colleagues and the lone believer teacher were the main contributors to the lone believer teacher feeling alienated. We define unbeliever colleagues as “teachers from the believer’s school who do not accept that IDGs belong in the classroom”.

Study participants proposed that this non-acceptance of IDGs in the classroom stemmed from preconceived negative views on games such as IDGs being a waste of time, showing no interest in seeing IDGs used in their classrooms, and being resistant to change. They felt that some of these negative attitudes were due to unbelievers not having recent, personal gaming experience of their own or with their own children. Table 1 further outlines these perspectives.
Table 1.
Believer teachers’ perspectives on their unbelieving colleagues’ attitudes towards games

<table>
<thead>
<tr>
<th>Why lone believer teachers think their colleagues do not value games</th>
<th>Supporting evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Games are a waste of time:</td>
<td>People who don't play games don't see that [games have educational potential], because they just view it as this old button-mashing... time waster of the past... (Miles, secondary school teacher).</td>
</tr>
<tr>
<td>“colleagues are prejudiced against games because they don’t have recent personal gaming experience or experience playing with their own children”.</td>
<td>I think most of the... teachers, don't have kids of their own, so they... don't have [games] at home... (Jennifer, primary school teacher).</td>
</tr>
<tr>
<td>That’s not happening in my classroom: “colleagues have no interest in seeing IDGs used in the classroom”.</td>
<td>They would be very, very nice and say, “Oh well, you know, you’re a computer programmer” or…”You were into that sort of thing”... All of the comments that they made in a light-hearted way were ways of saying,... “I’m a traditional teacher and there’s no way known that would happen in my classroom.” (Bernita, Secondary school teacher).</td>
</tr>
<tr>
<td>I've been doing fine without games: “colleagues are resistant to change”.</td>
<td>There are so many teachers who are comfortable with doing what they've always done... (Miles, secondary school teacher)</td>
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</table>

This clash of beliefs is what sets the scene for the lone believer teacher to feel alienated. The level of alienation felt was different for each teacher. For example, primary school teacher Linn felt so alienated from her colleagues that she eventually changed schools. In this quote Linn describes her negative experiences at her initial school:

[Using games is] something I’ve had to do on my own and I, I did it in a school that was very negative towards computers and games... it has been negative to me professionally, like your own, your teaching partners will stop talking to you.... you’ll be perceived by people for being a show-off or you’ll be perceived as being anti-social...

In contrast, secondary school teacher Milly did not experience negativity from her colleagues, however she did feel mostly alone in her use of games in her school. When she was asked if she passed on her work with IDGs to her colleagues when she left her school to work in a regional education office she said:
A lot of them weren’t, time factor didn’t just seem to be there. They knew the things I was doing… but a lot of them didn’t take it on.

Special Education teacher Steven felt frustrated at being the only person to use games in his school, especially when he saw firsthand how much a student with disabilities benefited from using games during special education withdrawal time. However, the mainstream teacher would not adopt the game:

... and that’s probably one of the biggest problems I’ve found if you don’t have a lot of people [other teachers] sharing that same belief or understanding umm, you know, it can be a bit of an issue.

c) Cycle of resentment

Some of the lone believer teachers felt the need to win over their unbelieving colleagues to the merits of using IDGs in the classroom so they continued campaigning for games in learning. When their attempts to convince their unbeliever colleagues were unsuccessful, the resentment levelled at the believer teacher continued to grow. The more the lone believer tried to convince unbelieving colleagues, the worse the resentment got. At the same time, the lone believer teacher was becoming increasingly popular with students because most students enjoyed playing games in class, and in some cases this added to the feelings of resentment levelled at the lone believer by the unbelieving colleagues. In this way, this cycle of resentment contributed to the lone believer’s feelings of alienation. Table 2 defines and provides supporting evidence for each key concept in the cycle of resentment.
Table 2.
Cycle of resentment key concepts, definitions, and supporting evidence

<table>
<thead>
<tr>
<th>Cycle of resentment key concept and its definition</th>
<th>Supporting evidence</th>
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<tbody>
<tr>
<td><strong>Campaign for games in learning:</strong> “The believer teacher goes forwards and onwards with activities that promote the use of IDGs for learning in their school.”</td>
<td>I’ve sort of had to just keep talking about [games] all the time. (Linn, primary school teacher).</td>
</tr>
<tr>
<td><strong>Cannot be convinced:</strong> “The believer teacher is unable to persuade unbeliever teachers that IDGs can be valuable for learning”.</td>
<td>No matter how much research you can show them [colleagues], no matter how much you can tell them they still resist. (Miles, secondary school teacher).</td>
</tr>
<tr>
<td><strong>Feeling resentful towards believer:</strong> “Unbelieving colleagues were annoyed with the believer teacher”.</td>
<td>When I first started teaching it [with games], every other kid in the grade who wasn’t in my class, got a little bit snotty with their teacher, which didn’t help things for me particularly much... ‘cos there was teachers getting, “oh, why do they get to do this and we don’t?” (Miles, secondary school teacher).</td>
</tr>
<tr>
<td><strong>Enjoying playing games in class:</strong> “Most students in the class take pleasure in playing IDGs as part of their learning activities”.</td>
<td>… gaming is just something the kids love. (Jennifer, primary school teacher).</td>
</tr>
<tr>
<td><strong>Increased teacher popularity:</strong> “The believer teacher’s methods received greater favour and approval from students”.</td>
<td>I guess, well in those days, I was, I suppose a very groovy teacher. I knew all the latest games... and you know, that has its advantages as well. They all wanted to be in my class, all of that sort of thing. (Bernita, secondary school teacher).</td>
</tr>
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</table>

*d) Curriculum and classroom concerns*

**Encouragement** for teachers to use information and communication technologies (ICT) in the classroom has not necessarily led to an increase in the use of IDGs in the classroom. This is partially because there are many competing technologies such as learning objects, smart boards, digital cameras and robotics competing for teachers’ attention. Another contributing factor is that the meaningful use of IDGs in the classroom can be challenging for any teacher, even for teachers who are highly motivated to use them, because it can be difficult to discover meaningful links between curriculum, class context, and IDGs. In
addition, there may be a fear of “losing control” of the class and there may be concerns about logistics associated with games in the classroom. Since unbeliever colleagues already do not value IDGs as a medium for classroom learning, these difficulties make them even less likely to use IDGs over other technologies, thus leaving the lone believer feeling further alienated and isolated. Definitions and supporting quotes for each of these research concepts are provided in Table 3.

e) Inadequate Advocacy

The lone believer teachers reported that having advocacy from the schooling system, researchers, and professional associations was helpful in bringing about increasing acceptance at a school-level but there was insufficient advocacy to stave off the alienation the lone believer felt from unbeliever teaching colleagues.

We define insufficient advocacy as “the support and recommendations for the use of games-in-learning provided by schooling systems, professional associations and researchers are not strong enough to filter down to the majority of educators in schools”. Primary school teacher Linn describes her frustrations with insufficient advocacy:

for games to go ahead in Queensland, we need to have someone in the Learning Place [an eLearning environment provided by the Queensland education system] that actually decides if this site [by site she was referring to games that use the internet] is ok or not…I have spent three years just still getting nowhere.

We define increasing acceptance as “games are beginning to receive a more favourable reception in schools”.

… with the advent of computer games and more of an acceptance here at the university… it sort of gave a legitimate aspect to gaming…

(Bernita, secondary school teacher)
Table 3.
*Curriculum and classroom concerns: key concepts, definitions, and supporting evidence*

<table>
<thead>
<tr>
<th>Concept and its definition</th>
<th>Supporting evidence</th>
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<tbody>
<tr>
<td><strong>Encouraging use of ICT in classrooms:</strong> “Schooling systems, researchers, and professional associations have a goal to persuade teachers to use more Information and Communication Technologies with students”</td>
<td>...lots of new initiatives, lots of new things... particularly ICT... at the moment we've got Probots, we've got easyspeak mics, we've got webcams... we've got umm, umm, flip cameras, we've got digital cameras, we've got videos... We've got sooooo many tools... that teachers are kind of struggling with... what do I use, what do I value above other things? (Esta, primary school head of curriculum)</td>
</tr>
<tr>
<td><strong>Competing technologies:</strong> “There are a large number of ICT devices and software for teachers to choose between”</td>
<td></td>
</tr>
<tr>
<td><strong>Meaningful use is challenging: links between curriculum, class context, and IDGs:</strong> “It is not easy to bring about a significant connection between curriculum frameworks developed by education bodies, perceived needs of the student population or the school community’s collective beliefs about learning, and characteristics or elements of IDGs”</td>
<td>... it was an uncomfortable feeling for me. I felt as though I needed to integrate it [games] into the curriculum and to find excuses and to find little opportunities... in order to umm, leverage the potential of that for a curriculum purpose and I was challenged by that and I didn't see an easy pathway forward. (Grant, primary school teacher).</td>
</tr>
<tr>
<td><strong>Meaningful use is challenging: fear of “losing control”: “Concern about how IDGs can be played in the classroom whilst maintaining acceptable levels of student behaviour”</strong></td>
<td>...there's still that fear factor of losing control... that, if you let them go, you know, it's hard to draw them back. (Milly, secondary school teacher).</td>
</tr>
<tr>
<td><strong>Meaningful use is challenging: concern about logistics:</strong> “Worried about managing practical details associated with using IDGs in the classroom”</td>
<td>...part of the problem is the restriction is the security... Where do I set it up? Where is it safe? So it won't get stolen. Do I have to pack it up, put it out every single lesson? I think that puts teachers off. (Milly, secondary school teacher).</td>
</tr>
</tbody>
</table>
f) Employing compromising and evading tactics

This section explores the consequences of the lone believer teachers feeling alienated from their unbeliever colleagues. Frequently, compromise and evasion tactics are required to negotiate school-based roadblocks. Further, those that have curriculum independence in their schools may also use games on the down-low so that their use of IDGs has very little impact on their unbelieving colleagues.

We define compromising and evading to negotiate roadblocks as “making concessions or finding ways around school-based obstacles to using games in the classroom”. Some of the types of roadblocks encountered included not having access to the resources required, not being able to purchase resources required (financial), not having physical space to play a particular game, not being able to get permission to use a game they want to use (political roadblock), or not being able to get the technical support required to get a game working using the school’s technology infrastructure. The types of compromise and evasion tactics employed by the lone believer teacher are outlined in Table 4.

The compromise and evasion tactics employed show the lone believer to be very resourceful and further shows that a determined teacher will find a way to use games in their curriculum. However, if such tactics are required to use games in the classroom, it is unlikely that their use will become mainstream.

A subset of the lone believer teachers had the independence to choose their own teaching methods, usually because they were teaching in a specialist area, were likely to use games on the down-low in order to avoid any negativity from unbeliever colleagues.

We define use games on the down-low as “discreetly using games so that it will not impact other educators”. Secondary school teacher Bernita explains:

They [other teachers] didn't believe it [an entertainment game] developed any sort of logic in those days so it might have been done a little bit under cover.
### Table 4.
**Roadblocks encountered and the corresponding compromise and evasion tactics employed**

<table>
<thead>
<tr>
<th>Roadblock type and definition</th>
<th>Compromise and evasion tactics employed</th>
<th>Supporting evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access</strong>: “Not having the means or opportunity to use the gaming hardware or software required”.</td>
<td>Finding alternate ways to access games other than using school infrastructure (e.g., bringing in games and consoles from home or allowing students to bring in their own).</td>
<td>…I tried to get computer time for them but it was just near impossible…I brought in consoles and stuff like that…All the consoles are mine and the games are mine… (Miles, secondary school teacher).</td>
</tr>
<tr>
<td><strong>Financial</strong>: “Unable to purchase required gaming hardware or software or subscriptions”.</td>
<td>Using cheaper alternatives such as older game consoles and different games.</td>
<td>We had other teachers who had older consoles, like the old xbox and stuff like that, who donated them for us for the unit. Aah, someone even found an old Sega Mastersystem in an op shop somewhere. (Miles, secondary school teacher).</td>
</tr>
<tr>
<td><strong>Physical space</strong>: “Not having adequate floor area to play a particular game. This usually applies to games requiring the player to move”.</td>
<td>Limit the simultaneous involvement of students to conform to the limitations of the physical space. Find / make physical space in the school to play games.</td>
<td>[The game can accommodate] four [players], and we had two [players]… well, we didn't have a lot of room in the classroom… [The other students] just sat up the back and watched… it would be better to have it in a larger area next time so…… I’d probably look at the library next time. (Jennifer, primary school teacher).</td>
</tr>
<tr>
<td><strong>Political</strong>: “Those who hold influence over what the teacher does in the classroom show resistance to using IDGs in the classroom”.</td>
<td>Compromises and only uses games labelled “educational”.</td>
<td>… now Pacman I was doing in the early 80s… The students, they loved Pacman… I was always in trouble [with administration]. It was not easy… So I had [to change to]…. the maths games… (Secondary school teacher Bernita explains her history of using games in the classroom).</td>
</tr>
<tr>
<td><strong>Student online safety</strong>: “School administration wanting to keep students free from dangers associated”</td>
<td>Use the online game in a very supervised, scaled-down way.</td>
<td>My school has to decide whether it’s safe or not… and at the moment I’m being told it’s, it’s ok to use as an experience for our students, to take them in there to look around… but I’m not</td>
</tr>
<tr>
<td>Roadblock type and definition</td>
<td>Compromise and evasion tactics employed</td>
<td>Supporting evidence</td>
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<td>with games that connect to the internet whilst they are at school”</td>
<td>Bypass anything that requires the school’s computer infrastructure.</td>
<td>allowed to use it as a learning environment… but it’s like an obstacle that I’m dealing with… (Linn, primary school teacher).</td>
</tr>
<tr>
<td>Technical support: “Difficulties getting adequate assistance to get games working on school computers or school’s ICT infrastructure”.</td>
<td>Find different games that will work on the school’s computer network.</td>
<td>The network would be slow, you know? … The kids couldn’t access the network or everyone would be accessing the same thing and it would slow down and… there’s nothing more frustrating…. that’s why when the [Nintendo] D5es came out, I jumped, when the Nintendos and the Playstations came out. Anything to get out of that network! (Bernita, secondary school teacher).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>… I remember spending about three hours trying to like install these games on MOE EQ network systems which was painful… [the school] computers that weren’t terribly good to start with, so I had to find all the older games I had. (Miles, secondary school teacher).</td>
</tr>
</tbody>
</table>
We define *specialised teaching areas increase teacher independence* as “teachers in specialised areas have more freedom in their teaching methods than those teaching in more mainstream curriculum areas”. That is, teachers in specialised fields such as special education, secondary school multimedia, or a low-achieving class where the school has suggested the teacher depart mainstream curricula to meet the students’ learning needs, still felt that they were intellectually separate from other teachers. However, these specialty teachers were able to use games without encountering as much resistance as those using them in more mainstream environments. Secondary school teacher Milly explains that whilst she felt that she was the only one in the school using game-play in her classes, it did not concern her because her school’s administration team permitted her to do it in her specialty area:

I did go to them [the administration team] and say, ‘look, I’m going to putting games into this [specialty] subject’, and they were quite happy for that to happen. (Milly, secondary school teacher)

It seems promising that a teacher in a specialist area can use games in autonomy without encountering too much resistance from *unbelieving colleagues*. However, these specialist teachers may have fewer informal opportunities to share their successes with nearby colleagues and, therefore, they are less likely to influence other teachers in their school.

**Discussion of These Findings in Light of the Literature**

This study suggests that teachers who want to use IDGs in their classrooms and do not have adequate local school-based support for using IDGs in the classroom may experience resistance, animosity, and sometimes persecution from colleagues in their school. Other studies do not indicate such consequences for teachers who use digital game-play in the classroom. However, there are varying reports on the level of uptake of digital games for classroom learning by teachers.

Takeuchi and Vaala’s (2014) findings suggest that the majority of United States K-8 teachers are using digital games in their classrooms, however very few were using IDGs. Almost all of these teachers were using short form learning games (drill-and-
practice, trivia, and puzzle games). Other studies have found that most teachers are not currently using and do not intend to use digital game-play in their classrooms (Becker & Jacobsen, 2005; Bourgonjon, et al., 2013; Kebritchi, 2010; Kenny & McDaniel, 2011). This would indicate that the majority of teachers, at best, do not consider the use of IDGs in the classroom a priority and, at worst, may not approve of IDGs in the classroom at all.

Many studies acknowledge that adoption of games-based learning depends largely on the acceptance of individual classroom teachers (Baek, 2008; Bourgonjon, et al., 2013; Can & Cagiltay, 2006; Egenfeldt-Nielsen, 2005; Sandford, et al., 2006), and that personal approaches to introducing games in classrooms, including support from nearby colleagues and students (Becker & Jacobsen, 2005), may be more effective than top-down approaches (Bourgonjon, et al., 2013; Kenny & McDaniel, 2011). Further, studies have shown that the teacher plays a significant role in optimising learnings from IDGs (Hämäläinen & Oksanen, 2014; Jenkins, 2003; Kebrtchi, 2010; Proserpio & Gioia, 2007; Stieler-Hunt & Jones, 2015b; Van Eck, 2006). Barriers such as technical problems, lack of adequate hardware and software, and financial barriers are often cited (Baek, 2008; Becker & Jacobsen, 2005; Rice, 2007; Sandford, et al., 2006). However, it is possible that these barriers mask the real issue: that teachers find it difficult to garner adequate support for implementing games-based learning initiatives because of negative opinions of nearby colleagues.

Why do nearby teachers have a negative view on their colleagues using IDGs? Our research does not give a definitive answer because its focus was on the teachers who were using IDGs rather than those around them. However, our research participants believed that their colleagues were already predisposed against IDGs because they see them as time wasters, not something they would want in their classroom, and they saw no need to introduce IDGs as they had never needed them before. Further, some of our research participants felt that nearby colleagues not only disapproved of their use of games but also began to resent it when students from their classes also expressed a desire to use IDGs in their class work.
Teacher perceptions that digital games are just entertainment and a waste of time permeate the literature (Bourgonjon, et al., 2013; Can & Cagiltay, 2006; Kennedy-Clark, 2011; Rice, 2007; Rosas et al., 2003). Further, in Becker and Jacobsen (2005), most teachers said they would not use commercial-off-the-shelf (entertainment) games in their classrooms. Similarly, Takeuchi and Vaala (2014) found that although 74% of K-8 teachers in the United States of America claim to use digital games in the classroom, less than 10% of these games-using teachers use IDGs in their classrooms. These perceptions about games may also be based in an undervaluing of play in the learning process. If we look at digital games as a way to provide meaningful play opportunities for players (Salen & Zimmerman, 2003), then teacher and societal attitudes to play are at the core of these beliefs. Rieber (1996) suggests that play is quite often seen as “irrelevant or inconsequential” (p. 44) to learning especially as people age, despite research indicating that play is an “important mediator for learning and socialisation” (p. 44) at all stages of life.

If games are generally seen as irrelevant or inconsequential to learning, it follows that most teachers will not be trying to establish meaningful links between entertainment games, class context, and the curriculum and even if they were, this study has found that these links can be difficult to establish. Other studies also found that identifying appropriate games for curriculum and teaching context is problematic for teachers (Baek, 2008; Bourgonjon, et al., 2013; Evans & Barbour, 2007; Proctor & Marks, 2013; Rice, 2007; Takeuchi & Vaala, 2014). In a meta-study, Rice (2007) found that a “lack of alignment to state [educational] standards” (p. 249) was a significant barrier to the use of digital game-play in the classroom. Similarly, Baek’s (2008) study found that teachers identified inflexibility of the curriculum as a barrier to using digital games and they also found it difficult to identify an appropriate game or know if it was appropriate. Bourgonjon et al. (2013) concludes that teachers should therefore be helped to understand what works, how it works, and when it works; not simply have games presented as a magic bullet.

But, the problem is more than just alignment with curricula. Our study also indicated that teachers were scared of losing control and concerned with the logistics
of managing games in the classroom. Research indicates that teachers not knowing how to accommodate games is a large barrier (Baek, 2008; Can & Cagiltay, 2006; Kennedy-Clark, 2011; Kirriemuir & McFarlane, 2004). In contrast to these studies, Bourgonjon et al. (2013) found that when they administered questionnaires to teachers, their views on the complexity of using games in the classroom did not predict their intention to use games in the future. Therefore, this study coupled with literature findings suggests that in trying to improve acceptance of IDGs in the classroom, pedagogies for using games in the curriculum need to be addressed at the same time as addressing teacher attitudes to using IDGs in the classroom.

In some cases the alienation prompts the believer teacher to work around “the system” so that they can continue with games. This requires compromise and evasion tactics such as not using school resources to play games, only using games as rewards, and not widely telling others about their work. This may require teachers to scale back the amount, scope, and types of games to which they would have otherwise used. This bears some similarities to a cluster analysis Takeuchi and Vaala (2014) performed on survey data from 694 K-8 teachers from the United States of America in which they labelled a sub group of teachers as “Barrier Busters” (p. 38), teachers who show ingenuity to overcome the barriers to using digital games in their classrooms. Most other studies do not report teachers employing these tactics although other researchers do list barriers to using games (Baek, 2008; Becker & Jacobsen, 2005; Groff, Howells, & Cranmer, 2010; Kirriemuir & McFarlane, 2003; Rice, 2007; Sandford, et al., 2006; Williamson, 2009). If this is a widespread phenomenon then it is unlikely that games will have maximum impact on learning until teachers do not feel they have to hide their use of IDGs in the classroom. It is possible that addressing barriers such as hardware and software limitations will not be effective until the underlying cultural and political issues are also addressed.

Rogers (2003) has identified five characteristics of innovation that affect its diffusion rate: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. Arguably, the most relevant to this study is “compatibility” which refers to the degree to which the innovation is perceived to be consistent with
current values, views, and needs (Rogers 2003). The part of our model labelled *clash of beliefs* indicates that the *lone believer* teacher perceives that the use of IDGs is consistent with their values, views, and needs; but their *unbeliever colleagues* do not. Therefore, it is likely that the rate of diffusion of the use of IDGs in classrooms will continue to be slow until these nearby colleagues perceive that using IDGs is consistent with their values, views, and needs.

### Conclusions, Recommendations and Further Research

This study implies that although the commonly cited barriers (such as lack of access to resources and difficulties aligning games to curriculum) to using IDGs in the classroom do exist, the solution does not lie in addressing each barrier individually. Rather, the solution may require redressing assumptions made about playing IDGs in classrooms so that this will no longer leave teachers who wish to use IDGs for curricula purposes *feeling alienated* from their colleagues. If this were to happen, it is possible that some barriers will automatically diminish and others will be easier to address.

The use of digital games in classrooms could not yet be considered mainstream despite the large body of research available on the benefits of digital game-play for learning; and that digital games have been used in small numbers of classrooms for decades. What are some possible strategies that could increase their use? We believe that the answer lies in cohorts of teachers working together at a single school site rather than small pockets of innovation. There is very little written on whole-of-school approaches to implementing digital games in the classroom. However, teachers participating in the Becker and Jacobsen (2005) study identified that games not being a school priority was a reasonably significant barrier to using digital games in the classroom.

This study found that many teachers using IDGs, at best, work in a silo with little influence on the practices of others and, at worst, feel persecuted by nearby colleagues because of their use of IDGs. Embracing carefully and purposefully selected IDGs in a meaningful way can create a more potent school world for learners where they are engaged, focussed, and motivated to learn. Also, the shared game-play
experiences can lead to improved social relationships between class members (Stieler-Hunt & Jones, 2015b). Further, studies have shown links between belonging and academic motivation and achievement (Goodenow, 1993; Osterman, 2000; Wentzel, 1998). Since games can offer opportunities to improve a learner’s sense of belonging and motivation, it follows that adopting digital games should be seriously considered by all educators. However, whilst negative teacher attitudes towards the use of digital games in the classroom persist, it will be difficult for the use of IDGs to become mainstream teaching practice and the potential impact of IDGs in the classroom will not be fully realised.

Acknowledgements

We thank the dedicated and hardworking educators that participated in this study.
References


A mentoring model to facilitate teacher adoption of interactive, immersive digital games for classroom learning

Colleen Stieler-Hunt and Christian Jones

Under review for journal publication.

Abstract

The benefits of using digital games in the curriculum are well documented in the literature. Most teachers who use digital games use short-form drill-and-practice learning games rather than the kinds of games most students would choose to play in their free time. The use of more interactive, immersive digital games in classrooms tends to be sporadic, dependent upon the enthusiasm and ingenuity of individual teachers. This qualitative study presents a Mentoring Model for teachers that was inductively derived through analysing in-depth, semi-structured interviews with educators who have used digital games in the classroom. The Mentoring Model helps teachers develop the attitudes and skills necessary to meaningfully use interactive, immersive digital games in their classrooms. A mentor must have a strong understanding of how to use digital games effectively in classrooms, work with small cohorts of teachers to collegially plan the use of digital games within a unit of class work, trial the unit of work with a small number of enthusiastic teachers, and then implement it with the remaining teachers. We found that this approach influences the attitudes of teachers who are ideologically opposed to the use of interactive, immersive digital games in the classroom and further supports teachers who are already open to the possibilities of using digital games in their classrooms. After presenting our Mentoring Model, we discuss the model in light of relevant literature.
Keywords: game-based learning; video games; primary education; secondary education; professional development

Introduction

Many educational organisations across the world promote the use of digital games in primary and secondary school classrooms (see Scottish Government, 2014; The Joan Ganz Cooney Center, 2014). Digital games include games played on home and handheld game consoles, personal computer games, web-games, mobile phone games, and games that blend the analogue and digital worlds. There are many ways to include digital games in classrooms such as digital game-play, game-study, and game-making. This paper focuses only on digital game-play.

A report by Takeuchi and Vaala (2014) revealed that most United States K-8 teachers use only short-form learning games in their teaching practice rather than the more complex and engaging digital games available. The mechanics of short form learning games are mostly based on learning by repetition (Okan, 2003). These games often fail to meet learner expectations (Takeuchi & Vaala, 2014) and only facilitate lower levels of learning (Rice, 2007a). Complex and engaging games have been designed for classrooms (e.g., Lure of the Labyrinth (Maryland Public Television, 2009), Orbit (Jones, Stieler-Hunt, & Rolfe, 2013)), but are not as frequently used (Takeuchi & Vaala, 2014). In this paper, we will use the term immersive digital games (IDGs) to refer to digital games that are more likely to involve the player in deep exploration and have them participate in activities distinct from didactic instruction (Takeuchi & Vaala, 2014). The use of IDGs in classrooms includes the repurposing of games primarily created for entertainment as well as using more complex and engaging digital games designed specifically for classrooms.

Benefits of using IDGs for student learning have been well documented. For example, Squire (2006) argues that games provide opportunities to learn through experiences in a way that cannot easily be replicated in the classroom. Further, Barab, Pettyjohn, Gresalfi, Volk, and Solomou (2012) found that students who learn through games have greater intrinsic motivation for schoolwork and learn more than students not using games. Dawley and Dede (2014) explain that using games as a learning tool
can thrust the learner from the periphery into the centre of a community built around shared game experiences. Further, this emotional engagement can provide opportunities for learning (Kafai, Quintero, & Feldon, 2010). Despite the documented benefits of digital games Squire (2005) warns that games should not be seen as a panacea for education and explains that teachers need to know how best to use digital games in their classrooms. Therefore, there is a need for teachers to learn how to make the best use of digital games in their classrooms.

Barriers exist to using IDGs in classrooms. Barriers include negative societal attitudes towards digital games (Bourgonjon, Valcke, Soetaert, de Wever, & Schellens, 2011) relating to addiction (De Vet, Simons, & Wesselman, 2014), portrayal of minorities (Archer, 2016), representation of gender and gender roles (Friedberg, 2015), and violence (Greitemeyer & Mügge, 2014); teachers not being able to find games that suit their curriculum (Stieler-Hunt & Jones, 2015a; Takeuchi & Vaala, 2014); teachers not knowing how to incorporate games into their curriculum (Kenny & McDaniel, 2011); and inadequate access to appropriate hardware and software (Watson, Yang, & Ruggiero, 2013). Further, researchers have found that attitudes of many teachers concur with the general populace; they believe that games have a detrimental effect on students’ lives and therefore do not accept that they have a place in the classroom (Bourgonjon et al., 2013; Can & Cagiltay, 2006; Dickey, 2015; Kennedy-Clark, 2011; Kenny & McDaniel, 2011). Teachers’ resistance or acceptance of IDGs has the potential to greatly impact students (Dickey, 2015). If we are going to further the use of IDGs in classrooms, it follows that negative perceptions of IDGs need to be addressed and teachers need to be supported to identify and use appropriate IDGs.

Ketelhut and Schifter (2011) found that successful teacher professional development programs for IDGs provide time for teachers to grow comfortable with the IDG, examples of how the IDG is successfully used in classrooms, and timely support. Since their study focussed on teachers who willingly volunteered to use a particular game in their classrooms, their study did not suggest ways to combat teachers’ negative perceptions of IDGs or how to identify appropriate IDGs for classroom use.
This paper presents a Mentoring Model to support the use and proliferation of IDGs in classrooms. Our Mentoring Model is made to be used with small cohorts of teachers with support from a knowledgeable mentor who provides teachers with responsive, individualised support. Our Mentoring Model provides a response to the research question, “How can cohorts of educators within an individual school embrace meaningful use of IDGs in their classrooms?” After presenting our Mentoring Model, we discuss the model in light of relevant literature.

This paper continues our previous work where we explored why some teachers, whom we labelled believers, embraced digital game-play in the classroom (Stieler-Hunt & Jones, 2015a). We defined believers as people who are persuaded that using digital game-play in the classroom can be beneficial for learning. Our Mentoring Model aims to increase the number of teachers who understand how IDGs can enhance the curriculum.

Method
Our research employed an inductive grounded theory approach (Corbin & Strauss, 2008) in which we conducted in-depth, semi-structured (1 to 2 hour) interviews with thirteen educators (8 female, 5 male) about how digital games have been used in their classrooms, their general beliefs about learning, and the support structures they work within. The interviews were conducted between 2010 and 2012 with further contact in 2015 to discuss findings and applicability with participants. All participants were from Queensland, Australia. A convenience sample was used with most of the educators responding to an invitation sent to a games-in-learning email list. Several participants were identified from the authors’ professional networks. These teachers were not a part of a broader games-in-learning project.

Interviews were audio recorded and transcribed. NVivo Computer-Assisted Qualitative Data Analysis Software was used to manage the audio recordings, transcriptions, and analysis process. We analysed data progressively during collection, a process known as theoretical sampling (Corbin & Strauss, 2008). A major emergent category warranting further examination was the area of effective games-in-learning mentoring. The development of the Mentoring Model resulted from applying a range of
analytical strategies including attribute coding, open-ended coding, subcoding, theming the data, pattern coding, axial coding, theoretical coding, code weaving, theorising (Saldaña, 2012), the conditional/consequential matrix, and the Paradigm (Corbin & Strauss, 2008); and concluded after reaching theoretical saturation (Corbin & Strauss, 2008). Although the majority of the concepts result from just two participants, Esta and Minnie (pseudonyms), we also used contrasting interviews (negative cases) from other participants to define the category. Contrasting interviews were provided by participants Miles, Linn, Bernita, and Steven (pseudonyms) who had not been able to act as successful games-in-learning mentors in their schools, despite their best efforts.

Within this paper we have used the convention of *italics* to denote categories and concepts identified during analysis. In vivo categories or concepts (categories or concepts using exact words of participants) are surrounded by ‘single quotes’. In many cases we have used language that is a close match to the data in order to honour the participants’ voices. Quotations from participants are in the indented quotation style. Definitions are in “double quotes”.

**Findings**

In this section we discuss the Mentoring Model to Assist Cohorts of Teachers to Use Digital Games in the Classroom (Mentoring Model) derived from interviews with our participants. We first understood the need for this research when many of our participants expressed frustrations with the lack of interest other teachers in their schools showed towards using IDGs in their classrooms. In some cases, the participants felt that the other teachers were apathetic or uninterested in the use of IDGs in classrooms and in others, the participants felt that their teaching colleagues were openly against the use of IDGs in the classroom.

*No matter how much research you can show them [colleagues], no matter how much you can tell them they still resist.* (Miles, secondary school teacher)
Using games is something I’ve had to do on my own and I, I did it in a school that was very negative towards computers and games... it has been negative to me professionally, like your own, your teaching partners will stop talking to you.... you’ll be perceived by people for being a show-off or you’ll be perceived as being anti-social... (Linn, primary school teacher)

Negative experiences with colleagues were commonplace in our data. Therefore, when we found two participants that had encountered positive experiences helping their teaching colleagues use IDGs in their classrooms, we felt that this warranted further analysis. We explored how their experiences were different from those who experienced apathy and hostility from their teaching colleagues regarding the use of IDGs (see “Effect of Successful Mentoring”). We also analysed our data to find the attributes of those who “successfully” mentored their colleagues (see “The Mentor: A responsive ‘one-person cheer squad’”) as well as how these people went about mentoring their colleagues (see “Mentoring Process”). We share the results of this analysis in the coming sections.

A graphic representation of the Mentoring Model is provided in Figure 1. In the top section we describe the attributes of a “successful” mentor; in the middle section we describe the three phases used in the mentoring process: collegial planning, trying it out, and spreading the infection; and on the bottom line we highlight that the effect of using this Mentoring Model is that it produces open colleagues.

Within each sub-section of the “Findings” we define each category and concept derived within the research, provide a quote from our data that was instrumental in deriving that category or concept, and delve further into the properties and attributes of these categories and concepts.
Mentoring Model to assist cohorts of teachers to use digital games

The Mentor: responsive ‘one-person cheer squad’

Attributes:
- Has school administration support
- Does not work full-time in the classroom
- Has formal or informal leadership role
- Is a ‘believer’ in using IDGs in the classroom
- Proactively seeks opportunities for school’s educators to use IDGs
- Supports teachers in a responsive manner.

Collegial Planning
Purposefully consider:
- looking beyond content
- resourcefully adapting
- quality play for all
- creating artefacts
- sharing control

Trying it Out
- leading the willing
- supporting responsively

Spreading the Infection

Effect: open colleagues

Figure 1. Mentoring Model to assist cohorts of teachers to use digital games in their classrooms.

Effect of Successful Mentoring

Successful mentors reported that their mentoring approach to using IDGs in classrooms meant that teachers at their school were open to the possibilities of using IDGs in their classrooms. We define open colleagues as “teachers from the mentor’s school are receptive to using IDGs in their classroom”.

I’ve never really had resistance to any of the ideas that I’ve kind of put forward… it’s about having relationships with people as well and trust. (Esta)

Rather than being the person in control, I was sort of empowering other people [teachers] to do it, and they could always come to me…. (Minnie)

The Mentor: A responsive, ‘one-person cheer squad’

We describe the successful games-in-learning mentor as a responsive ‘one-person cheer squad’ which we define as “an educator who reminds, leads, and supports other
educators in their school to use IDGs in their classrooms; whilst offering encouragement, and sensitively and proactively responding to any issues or concerns raised by the educators they support”.

We derived this term by comparing those who had successfully mentored other teachers in their school to use digital games in the classroom with those who had been unsuccessful. We chose the term mentor because the educator was recognised by their teaching colleagues and the school’s administration team as having sufficient experience or expertise to assist other teachers with curriculum implementation.

The descriptor responsive was used because those that successfully mentored teachers would use techniques that would address teacher concerns and issues whereas those that were unsuccessful were unable to do this. Esta reflects on how she has supported teachers:

So I guess it's about saying, you know, there's support here if you... feel really passionate about using these games... it's just getting teachers to kind of refocus their energies and, and, revisiting some of the, the values of using games, getting out the hardware, setting it up, having those discussions.

By contrast, Miles described how he attempted to help teachers in his school use digital games in their classroom. His approach was to do the teaching for teachers who did not feel confident, rather than address their specific needs.

I actually, supported every single class with it and would go in and do like the intros to the unit... I think they still felt, 'oh, if I couldn't teach it, what's the merit in it?'

The concept ‘one-person cheer squad’ was an in-vivo code taken directly from this quote from Esta.

... I guess my role is about, it's like a cheer squad I guess, my very own one-person cheer squad... I guess it's about conversations where I'm reminding teachers, ...
Some additional attributes of successful mentors and supportive evidence are outlined in Table 1.

Table 1.  
Attributes of a successful mentor and associated evidence from the data

<table>
<thead>
<tr>
<th>The successful mentor:</th>
<th>Data evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Has school administration support.</td>
<td>When asked about the reaction of school administration to her games-in-learning role, Esta said, ... never negative, never in the way, supportive...</td>
</tr>
<tr>
<td>(2) Does not work full-time in the classroom.</td>
<td>Minnie (primary school teacher) explains that she is a part-time employee and became an informal leader within the school, ... I only actually work a day and a half, so I would come in other days as well and help out...</td>
</tr>
<tr>
<td>(3) Has a formal or informal leadership role within the school.</td>
<td>Esta has a full-time leadership position, she does not have her own class. ... my role is Head of Curriculum, so I’m about curriculum... I’m also about the pedagogy, so the best way to engage kids, the best way to deliver content....</td>
</tr>
<tr>
<td>(4) Is a believer in using IDGs in the classroom.</td>
<td>What is a really immersive experience that we can give kids?... It has to be games because, other than going out into an environment, this is the next best thing... (Esta)</td>
</tr>
<tr>
<td>(5) Proactively seeks opportunities for the school’s educators to use IDGs in the classroom.</td>
<td>... I’m excited about games all the time... and it’s something that... I talk about a lot with staff, so, when we met yesterday... I started talking about games and we started talking about... the kinds of worlds that kids would be getting introduced to through the game play, they got really excited because they realised, ‘hang on, here’s an experience that we can give kids that will really prepare them’... (Esta)</td>
</tr>
</tbody>
</table>

Mentoring Process

COLLEGIAL PLANNING

Successful games-in-learning mentors begin working with their colleagues during curriculum planning. They engage in a process we are labelling collegial planning which we define as, “working together as a group and sharing responsibility to develop a scheme of action for using IDGs as a meaningful part of classroom learning”.

Before school even started... she [the teacher] approached me and said, ‘... I like that sort of thing too. Is there any way that we can [work together on a games unit]?’ ... We did this Inspiration thing [planning
Within this collegial planning process, our analysis identified five aspects that should be purposefully considered during this planning phase: looking beyond content, resourcefully adapting games, providing quality play for all, creating artefacts and sharing control. We are not claiming this to be an exhaustive list, however we do believe that favourable results are more likely if these aspects are considered.

Within the collegial planning process the mentor should work with the classroom teacher to look beyond content, which we define as “seeking ways to use IDGs that will do more than just improve test scores and cover mandated curricula content, to make conditions more conducive for learning in classrooms (e.g., social emotional outcomes), engage with curriculum intent, or change attitudes”. For example, Esta describes how she worked with a group of her colleagues teaching P-1 (4 – 6 year olds) to purposefully plan a unit about healthy bodies and social skills using the game Wii Fit (Nintendo, 2007).

Many IDGs are made to be played in the home, not in a classroom with so many potential players. The mentors helped teachers resourcefully adapt their chosen IDGs to optimise its use in the classroom. We define resourcefully adapting IDGs as “aim to get more out of the IDG than was intended by its developers through thoughtful and skilful adjustments”. For example, Minnie explains that when they used a scuba-diving game, the students played in “diving groups” so that they could communicate and solve problems together. Group-play also enabled students to get more game-time. The entire class played one save-game to build a shared class experience. This resulted in all students being invested in the shared game’s progress. Minnie describes the emotional investment of the class,
.... and when this group got back to the boat and, you know, the white dolphin had come. <Children were exclaiming> ‘We’ve got it! We’ve got it!’ Everything stopped!

Within the collegial planning process, it is also important to consider how the teacher can provide quality play for all. We define providing quality play for all as “supplying access to game-play opportunities in the classroom so that every student in the class has a valuable game-play experience”. This contributes to building a shared experience for the entire class which in turn can build a sense of community between class members. Techniques for providing quality play for all include game-play rosters, rotational activities, and playing in pairs or groups and possibly allocating rotating roles within groups. There is not a one-size-fits-all approach as it depends on the nature of the game, the class context, and the curriculum being studied. For example, Minnie’s class used the yoga section of a one-player game Wii Fit by having a student at the front of the room using the Wii Balance board game controller and the other students “practising” the same yoga pose behind that student,

… one person out the front... and we just kept swapping children around but the whole class could work as one then.

Another aspect to consider during the collegial planning phase is what artefacts students can create based on their game learnings. Creating artefacts can give students an extra purpose for playing the IDG. We define creating artefacts as “producing a digital or non-digital product related to one or more aspects of game-play or game learnings”. Esta describes how students playing Viva Piñata (Rare, 2006) applied their game learnings about eco-systems to create an action plan for their local waterway,

The major piece of assessment... was an action plan around the field study... [of] Lake <<name removed>>... all of the things that we were getting out of the field study, were actually being reinforced from the game.

Finally, within the collegial planning process, the mentor should help the teacher develop pedagogical strategies for sharing control with students. We define
sharing control as “the teacher not needing to be ‘in command’ of the class at all times whilst encouraging students to develop a level of responsibility for their own learning”. Sharing control includes accepting that students may sometimes engage in activities that the teacher does not want them to do, requiring students to complete tasks based on the IDG with completion of these tasks being the students’ responsibility, establishing up-front agreement with students regarding length of play sessions, and helping students understand where the game fits within their broader context of learning. Minnie describes how she decided to accept that students were accessing a section of the game that was not completely relevant to the artefact they were tasked to create,

I knew they’d snuck onto something and I just left it after that, ‘cos I figured they will work out what they think is appropriate or not.

Esta describes her teachers’ views on where games fit within the broader context of learning,

We treated it as a tool and as another resource. So we didn’t tend to… be doing cartwheels about saying this is a really different or unusual… it is a resource and a tool that we use to achieve a certain end, it’s not an end in itself.

TRYING IT OUT

After the collegial planning process successful mentors trialled the IDG. We have named this approach trying it out which we define as “evaluating the unit of work featuring IDG(s) with a small number of classes before attempting to spread its use further”.

When we did that particular unit we actually had teachers’ trialling it… We tend to try things because we want to make sure that what we are doing is worthwhile… so we tend to like paddle around, try something out, take it to,… the degree that we are really excited about but with one or two classes… (Esta)
In the trying it out phase, the mentor purposefully chooses educators to work with. They aim to lead the willing which we define as “guiding educators who have expressed desire and enthusiasm to use the IDG(s) with their class”. Levels of comfort and enthusiasm can be ascertained during the collegial planning process.

That’s the key to have [teachers that are] even slightly interest[ed].

(Minnie)

During this phase, the mentor responsively supports the participating teachers. Support may include co-teaching, regular discussion and reflection, help with setting up equipment, and the mentor occasionally teaching the teacher’s class to model a particular teaching technique. We define supporting responsively as “providing assistance that takes into account individual teachers’ difficulties with using the IDG(s) in the classroom”.

I guess it’s about saying, ‘there’s support here… I can come and do some modelling with your kids’. (Esta)

SPREADING THE INFECTION
After trialling the IDG based unit of work, if the unit was deemed successful, the mentor then moves on to further embedding the unit in the curriculum for that year level. We call this phase spreading the infection which we define as “using the enthusiasm and successes of the trial to extend the use of the IDG(s) to other teachers in the school”.

… the kids are motivated to do it and the teachers… it’s like an infectious disease. (Minnie)
so we tend to... try something out... and then it... spreads further afield.

(Esta)

Discussion
Many studies call for teachers to learn about effective use of IDGs in order to further advance the use of IDGs in classrooms (Beavis et al., 2014; Becker, 2007; Becker & Jacobsen, 2005; Kenny & McDaniel, 2011; Perrotta, 2013; Takeuchi & Vaala, 2014).
Inevitably, there are similarities between professional development programs aimed at IDGs and those targeting other entertainment media such as films and literature. However, there will also be nuances because IDGs are significantly different to other entertainment media. For example, many teachers do not believe IDGs belong in classrooms (Stieler-Hunt & Jones, 2015b) and there are more technical roadblocks associated with using games in the classrooms than there are with using other media (Stieler-Hunt & Jones, 2015b). IDGs aim to create meaningful player experiences (Fullerton, 2014; Salen & Zimmerman, 2003; Schell, 2015) through providing the player with meaningful choices, feedback to those choices, and immersion in a world that feels real. In this way they are different from film and literature. Therefore, special access arrangements may need to be made based around the needs of the curriculum and the learning context (Stieler-Hunt & Jones, 2015c). In addition, since some teachers do not believe games belong in classrooms (Stieler-Hunt & Jones, 2015b), the mentor needs to be responsive to doubts and concerns that the teachers have and be able to help teachers understand how to best use the resource. The model also allows the most willing to go first so that they can act as role models for other teachers. This is not as necessary with other media as their use is less controversial. Finally, there are more technical roadblocks associated with using games in classrooms than there are with using other media (Stieler-Hunt & Jones, 2015b).

We have identified three recurring themes relating to the use of IDGs in classrooms and professional development for teachers in the literature. These themes are teachers’ pre-conceived negativity towards digital games can be a significant barrier to the use of IDGs in classrooms (Baek, 2008; Can & Cagiltay, 2006; Kenny & McDaniel, 2011; Rice, 2007b), personal approaches to using IDGs in classrooms are more likely to be effective than top-down approaches (Becker & Jacobsen, 2005; Bourgonjon, et al., 2013; Kenny & McDaniel, 2011; Ketelhut & Schifter, 2011), and teachers need to develop an understanding of how IDGs can be used effectively in classrooms (Becker, 2007; Can & Cagiltay, 2006; Evans & Barbour, 2007; Kenny & McDaniel, 2011; Ketelhut & Schifter, 2011).
There are varying reports on teachers’ attitudes towards the use of IDGs in classrooms. Attitudes expressed in eight studies are summarised in Table 2. Teachers in the more recent studies (Proctor & Marks, 2013; Takeuchi & Vaala, 2014) had more positive perceptions about using digital games in the classroom, however negative perceptions predominate the other studies. Proctor and Marks (2013) study was on educational games which may not include the use of IDGs. Likewise, most teachers in Takeuchi and Vaala’s (2014) study indicated that they were using short form drill-and-practice learning games rather than IDGs. Therefore, we cannot assume that these positive perceptions would necessarily transfer to the use of IDGs in classrooms.

Table 2. Studies exploring teachers’ attitudes towards using digital games in the classroom

<table>
<thead>
<tr>
<th>Study</th>
<th>Description of study participants</th>
<th>Types of games participants were exposed to</th>
<th>Teachers’ attitudes towards using games in the classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takeuchi and Vaala (2014)</td>
<td>K-8 in-service teachers, US.</td>
<td>Most teachers were using short form learning games.</td>
<td>Digital games had improved student mastery of curricular content.</td>
</tr>
<tr>
<td>Bourgonjon, et al. (2013)</td>
<td>In-service secondary school teachers.</td>
<td>NA – general questionnaire, teachers may or may not have had experience using games in the classroom.</td>
<td>Teachers did not intend to use games in their classrooms in the near future. Games are not useful for enhancing teachers’ job performance.</td>
</tr>
<tr>
<td>Kenny and McDaniel (2011)</td>
<td>Undergraduate, pre-service teachers studying technology integration, US.</td>
<td>Entertainment golf game on two different consoles.</td>
<td>Teachers had negative attitudes towards using games in the classroom. Increase in positive attitudes after playing.</td>
</tr>
</tbody>
</table>
### Description of study participants

<table>
<thead>
<tr>
<th>Study</th>
<th>Types of games participants were exposed to</th>
<th>Teachers’ attitudes towards using games in the classroom prior to an intervention</th>
<th>Negative</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baek (2008)</td>
<td>NA – general questionnaire, teachers may or may not have had experience using games in the classroom.</td>
<td>Worried students will become addicted, too competitive, and show out of control behaviour.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice (2007b)</td>
<td>NA – review of literature.</td>
<td>Negative perceptions toward video games as educational components.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can and Cagiltay (2006)</td>
<td>Computer games with educational features.</td>
<td>Half participants responded that playing games is a waste of time. Doubts and fears about using games in the classroom.</td>
<td></td>
<td>80% agreed that games can help students learn.</td>
</tr>
</tbody>
</table>

In some studies, teachers’ perceptions were complex and sometimes contradictory. For example, in Can and Cagiltay’s (2006) study, 80% of participants agreed that games can help students learn whilst 50% of participants responded that they believed playing games was a waste of time. Similarly, in Bourgonjon, et al.’s (2013) study teachers expressed that games provide opportunities for learning whilst also expressing that games were not useful for enhancing their teaching performance and most did not intend to use games in their classrooms in the near future. Studies
such as ours can help teachers navigate the confusion surrounding the use of IDGs in classrooms.

Other studies found that when participants had the opportunity to play digital games that could be used in classrooms, their opinions of the usefulness of digital games became more favourable (Kennedy-Clark, 2011; Kenny & McDaniel, 2011). This is in keeping with Becker and Jacobsen’s (2005) findings that teachers are more likely to be willing to use digital games in their classrooms if they have used them previously. Our model provides opportunities for more teachers to be supported to use IDGs in their classrooms.

As part of our methodology we presented our complete research findings to our participants. We found that participants who had not been particularly negative about their colleagues’ attitudes towards IDGs in their initial interview explained that these negative attitudes towards using IDGs in the classroom resonated with their experiences.

I had many negative comments from colleagues who could not understand how the games enhance the learning process. (Milly, secondary school teacher)

Becker and Jacobsen (2005) found that personal approaches to introducing games in classrooms, including support from nearby colleagues, may be more effective than top-down approaches. Similarly, Ketelhut and Schifter (2011) concluded that teachers require just-in time support to use IDGs in classrooms. Kenny and McDaniel (2011) explained that whilst top-down support was necessary, it was insufficient on its own and more personal support was also required. Bourgonjon, et al. (2013) found that most teachers and those that influence them do not view commercial video games as a useful tool for classrooms. Our mentoring approach uses an influential and knowledgeable person in the school to personally and responsively support colleagues to plan and use digital games in their classrooms.

Kenny and McDaniel’s (2011) and Evans and Barbour’s (2007) studies found that pre-service teachers lack an understanding of how to use IDGs in the classroom.
Can and Cagiltay’s (2006) study found that pre-service teachers believed that teachers need to be extremely skilful to use IDGs in the classroom. Similarly, Becker (2007) explains that teachers can only use IDGs successfully in the curriculum after they understand what IDGs have to offer and how to take full advantage of them. Dickey (2015) concludes that the interplay between the teacher, the IDGs, and the students is what controls the quality of the learning environment. It follows then, that if teachers do not understand how to use IDGs effectively in their classrooms, it will be difficult for teachers to use them as a tool to create a productive learning environment.

Bourgonjon, et al. (2013) and Ketelhut and Schifter (2011) recommended that those educating teachers on how to use IDGs in classrooms provide specific examples of how IDGs can be used to increase quality and effectiveness of teaching and learning. Our mentoring approach skilfully guides teachers as they learn how to effectively use IDGs in classrooms.

Conclusions

Arguably, the most significant barrier to using IDGs in the curriculum is negative opinions of nearby teaching colleagues. The Mentoring Model presented in this paper is an approach for helping all teachers make the most of the opportunities IDGs can offer learners, beginning with one mentor who understands how IDGs can be used effectively in the curriculum. It maps out how to provide opportunities for teachers to work with IDGs at their own pace in a supportive environment.

This is both a top-down and bottom-up approach requiring both support from the school administration team and the ideas and capabilities of groups of teachers. Therefore, it does not rely on the ingenuity of just one teacher in a school.

With increasing demands on schools it may be difficult to find a mentor with adequate skills and expertise. Therefore, we suggest schools that successfully set up a games-in-learning mentoring program based on our model, consider acting as “mentors” for other schools in their local area.

The full contribution of IDGs to learning and schooling will not be realised until all teachers are comfortable and enthusiastic about embracing the affordances of IDGs. This Mentoring Model can help build the capacity of cohorts of teachers to use IDGs in...
their classrooms. As this Mentoring Model was inductively derived from existing practice, we invite other researchers to test this Mentoring Model with cohorts of teachers.

**Acknowledgements**

We thank the dedicated and hardworking educators that participated in this study.
References


Paper 4.

A Model for Exploring the Usefulness of Games for Classrooms

Colleen Stieler-Hunt and Christian Jones


Notes
The paper has been reproduced from the Proceedings of the Digital Games Research Association (DiGRA) 2015 Conference: Diversity of Play with the following modifications: page numbers have been changed to keep them consistent with the rest of this document and the header “Paper 4” has been added to each page.
A Model for Exploring the Usefulness of Games for Classrooms

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ABSTRACT
Meaningful use of digital games can create a more potent schooling environment where students are engaged, focussed and motivated to learn. However, the potential impact of games in the classroom will not be realised until teachers learn to embrace the strengths of digital games. This paper presents the Game Uses Model for Classrooms (GUMC), a Model to help teachers explore the use of digital games in their unique classroom context. The GUMC was directly derived from experiences of educators in Queensland, Australia. It aims to make explicit the intuitive thought processes of teachers who use games effectively, and can be used as a planning tool for all teachers to help them to richly and elaborately intertwine games into their curricula. The GUMC can also be used by game designers to help them create games that have subtle but powerful classroom relevance.

Keywords
game-based learning, video games, elementary education, secondary education, pedagogical issues

INTRODUCTION
This paper presents the Game Uses Model for Classrooms (GUMC) to help teachers explore the use of digital games for their unique classroom context. Short form, edutainment-style games that commonly focus on content delivery or recall are most often used in classrooms (Takeuchi and Vaala 2014). The GUMC encourages teachers and game designers to consider games as much more than content repositories when considering classroom suitability.

We begin by presenting an outline of the discourse on Games and Learning in Classrooms. Next, we give an overview of the GUMC. Then, we present 3 vignettes illustrating various aspects of the GUMC. The GUMC is then discussed further by relating it to three contemporary learning theories and principles and then the teachers’ role using the GUMC is explained. Finally, we present our conclusions.
GAMES AND LEARNING IN CLASSROOMS

Worldwide, there are many initiatives that encourage teachers to use digital games in primary and secondary school classrooms (see Scottish Government 2014, Queensland Government 2008, The Joan Ganz Cooney Center 2014). By digital games, we mean any game that uses electronic hardware to deliver some or all of the game. This includes video games played on home and handheld consoles, PC games, web-games, mobile phone games and games such as alternate reality games that blend the analogue and digital worlds. It does not include traditional board games or card games – although some of the principles identified will equally be applicable to non-electronic games. There are many ways to include digital games in teaching and learning. For example, the state education department of Queensland, Australia, ran a games in learning program encompassing four overlapping strands: digital game-play, game-study, game-making and game innovation (Queensland Government 2008). This paper is focused solely on digital game-play, the act of participating in a digital game.

The benefits of using digital games in the curriculum have been well documented in the literature. Arguably the most attractive feature of digital games for educators is their ability to keep players engaged and motivated whilst building high levels of understanding of the game-world and their actions within it (Gee 2008, Klopfer et al. 2009, Beavis et al. 2014). This understanding and motivation partly comes from the regular, immediate feedback that allows players to understand the impact their decisions have on the game-world in real-time (Gee 2008, Kirriemuir and McFarlane 2004). Further, games also provide players with opportunities to fashion and experiment with identities and choose the amount of effort they wish to expend in a low consequence environment (Gee 2008, Klopfer et al. 2009) that nevertheless feels authentic (Barab et al. 2012). Moreover, games can elicit social interactions between players in the virtual game environment, in online communities associated with the game and in real life (Gee 2008). Educators and researchers alike see the appeal in harnessing these features to engender better learning in classrooms.

Despite there being a plethora of complex and engaging digital games available, a recent report by Takeuchi and Vaala (2014) found that, although most United States K-8 teachers were using games in their classrooms, most teachers were using short-form learning games (drill and practice, trivia and puzzle games) rather than the types of games students would choose to play at home. Other studies have found similar trends (Kirriemuir and McFarlane 2003, Rice 2007). Short form learning games tend to feature game mechanics largely based on learning by repetition (Okan 2003). They do not tend to meet learners’ expectations (Kirriemuir and McFarlane 2004, Takeuchi and Vaala 2014) and only encourage lower levels of learning (Rice 2007). More complex and engaging games have been designed for classrooms (eg. Lure of the Labyrinth (Maryland Public Television 2009), Orbit (University of the Sunshine Coast 2013)) but they are not as frequently used in classrooms as short-form learning games (Takeuchi and Vaala 2014).

The literature has also documented the barriers to using digital games in classrooms. Commonly cited barriers include difficulties matching games to the curriculum (Kirriemuir and McFarlane 2004, Takeuchi and Vaala 2014), insufficient access to adequate software and hardware (Sandford et al. 2006), negative views on games (Anderson 2004, Dill and Thill 2007, Kim et al. 2008, Kirriemuir and McFarlane 2004) and insufficient time in the school day (Kirriemuir and McFarlane 2003). Perhaps it is this difficulty matching games to the curriculum that causes teachers to mostly use short-form learning games in their classrooms (Takeuchi and Vaala 2014, Kirriemuir and McFarlane 2004).
Due to the barriers cited above, the use of games in classrooms is dependent upon the enthusiasm and ingenuity of individual teachers and their advisors (Kirriemuir and McFarlane 2003). For example, Van Eck (2006) argues that introducing games requires “careful analysis and a matching of content, strengths, and weaknesses of the game to the content to be studied” and Egenfeldt-Nielsen (2005) states, “the fruits of computer games can only be enjoyed if the teacher learns how to harvest the fruits”. Some researchers attempt to bridge this gap by providing examples of how teachers use games in their classrooms (eg. Jenkins 2003, Mitchell and Savill-Smith 2004). Whilst these are useful, they may be difficult to apply to different teaching contexts. Therefore, a model that helps teachers realise the benefits of digital games for their classroom is needed.

There are already a number of useful models and theories aimed at helping teachers use digital games in curriculum. For example, the Games as Text, Games as Action Model (Beavis 2014) is designed to provide teaching foci for using games in the English curriculum, Rice (2007)’s Video Game Cognitive Viability Index helps teachers calculate a score for the level of Higher Order Thinking associated with playing a game. Others offer methods for digital game professional development programs for teachers (Ketelhut 2011), a theory on how learning occurs through the use of educational computer games based on Kolb’s experiential learning (Egenfeldt-Nielsen 2005), and how to design games for education (Zin et al. 2009, Echeverría 2011). Perhaps the most similar in intent to our Model is Gros (2007)’s Pedagogical Use of Videogames in School study where she outlines a methodological approach to creating a learning environment in which a game is the “starting-point of students’ experience”. It provides a series of steps teachers can follow when using games in the classroom. Our Game Uses Model for Classrooms (GUMC) is more open-ended and aims at making explicit the considerations of teachers who use games successfully in the curriculum.

A MODEL FOR EXPLORING THE USEFULNESS OF A DIGITAL GAME FOR DIVERSE CLASSROOM CONTEXTS

In this section we present the Game Uses Model for Classrooms (GUMC), a Model for exploring the usefulness of a digital game for diverse classroom contexts (see Figure 1). The GUMC was developed through qualitative analysis of in-depth, semi-structured interviews, ranging from one to two hours in duration, with 13 educators and education advisors from Queensland, Australia whose use of digital games has extended beyond using short form games and beyond using games as a non-integral part of the learning process. It aims to make explicit the intuitive thought processes of teachers whose use of games is successfully and elaborately intertwined with curriculum. It is designed to help educators holistically explore how games can be useful in the classroom with a focus on pedagogies rather than evaluation of student performance.

This model is best used during the teachers’ curriculum planning phase. Firstly, teachers identify a digital game or games that they wish to explore for possible links to their curriculum. Secondly, the teacher develops some familiarity with the game through any or all of the following methods: playing the game themselves, observing children playing the game and/or watching online game-play videos. Finally, they use the components of the GUMC as prompts for exploring potential uses of the game(s). The GUMC encourages teachers to look beyond content-oriented teaching goals to also include social goals as well as the unique affordances playing a game in a classroom setting offers. The Model helps teachers think more holistically about how games may be used to benefit students.

There are four student-centred components of the GUMC:
1) **Practising** – game-play provides opportunities for students to practice skills
2) **Influencing** – students can be influenced by games
3) **Discovering Affinity** – games can be a conduit to help students discover affinity with class members
4) **Inspiring** – capitalises on the motivation derived from (1) playing, (2) being influenced by games and (3) discovering affinity with class members through game-play to inspire students to learn, create and apply their learnings in new contexts.

The focus questions listed in each section of the GUMC help teachers consider the game’s possible curriculum uses from a variety of viewpoints. These focus questions were inductively derived through exploring how study participants were using digital game-play in their classrooms. It is not expected that answers to all focus questions will be equally useful for planning purposes as it will depend on the nature of the curricula being addressed. Also it should be noted that there is overlap between components and also focus questions. The components and focus questions may not be exhaustive, however consideration of all four components can assist teachers to use games more holistically in their classrooms.

**Figure 1:** Game Uses Model for Classrooms (GUMC).

In this paper we are taking a broad view of the term “curriculum” as “any learning that occurs in a school”. This includes government-mandated curricula (eg. Mathematics, Science), school-based curricula programs (eg. Social and Emotional programs, Higher Order Thinking programs) and curriculum that may be intuitive to the teacher (eg. “I like to create a family atmosphere in my classroom”).

Next, we will explore each of the four components of the GUMC in turn. Each section begins with its list of focus questions followed by a more detailed description. We hope that the GUMC will prompt teachers to explore new ways of experiencing games in their classrooms.

**Practising**
Focus Questions: What does the player do in the game? What does the player think about while doing it? How does what the player do and think align with curricula goals?
Almost all games require the player do something to succeed in the game. In game design terms, what the player “does” is known as a mechanic (Hunicke et al. 2004). In some cases, the game mechanic’s alignment to curricula goals is blatantly obvious but for others it is more subtle. For example, a dance game such as Dance Central (MTV Games 2010) may be suitable for a dance curriculum and a mathematics learning game such as Personal Trainer: Math (Nintendo 2008) may be useful to give students times tables practice. These examples are both blatantly obvious curriculum matches. Unfortunately, many games that have a blatantly obvious curriculum alignment do not live up to player expectations (Kirriemuir and McFarlane 2004) and bear little resemblance to the types of games students would choose to play in their spare time despite being widely used in classrooms (Takeuchi and Vaala 2014). If teachers only look to games that have blatantly obvious but shallow curriculum alignment, then they may miss the potential richer, deeper, more engaging games that have subtler but arguably deeper ties to the “big” ideas of the curriculum, also known as curriculum intent.

To identify these types of games, the teacher needs to think more deeply into the total experience of playing the game and to think about not just what the player is doing in the game but also what the player is thinking whilst doing it. For example, what sorts of decisions is the player making? How can the teacher use those game decisions to relate the game-world to curricula? Other components of the GUMC can also help identify subtler alignments between games and curriculum.

**Influencing**

Focus Questions: What aspects of the game-world does the player care about when playing the game? How can we help the students bring this understanding/caring to their own world? How can we relate the emotion evoked by this game to curriculum intent? What aspects/sections of the game evoke emotion? How are games popular culture texts / intellectual works that influence, inspire and reflect society?

As created works, games have a set of values and underpinning beliefs that permeate each game and evoke emotional responses in the player. Game designers use the term “aesthetics” to refer to the desired emotional responses the game evokes in the player (Hunicke et al. 2004). This section of the GUMC explores how values, beliefs and emotions embedded in, perpetuated by and evoked by the game can influence students’ attitudes to and understandings of the world. This influence can be used to help students be critical of games as popular texts that influence, inspire and reflect society but can also be used to embody desirable values and beliefs that align with curricula intent.

**Discovering Affinity**

Focus questions: How do we / can we / should we play the game (eg. Individually, in pairs, in groups, whole class)? How can we play the game in such a way to build social relationships? How can we use this game / games to promote equity and leadership? How can we use the game’s shared experiences to meet curricula goals? How can we extend the fiction of the game to the classroom?

Games can provide the basis to build rapport between class members through the shared experiences offered by the game-play in a non-confronting way. Whilst this can happen organically, it can also be purposefully planned by the teacher through the way students interact with the game (eg. individually, in pairs, in groups, whole class). Teachers can also facilitate **Discovering Affinity** by: (1) providing opportunities for students to share their game-play experiences with their classmates, (2) allowing students to help each other with
game-play and (3) extending the fiction of the game to the classroom. Many games have in-built elements designed to increase affinity between players (e.g., visiting other players’ game spaces to see their game rewards or how they decorated their game space, multi-player games played at the same game console, multi-player online games, message boards, cooperative game-play). For example, *Orbit*, a sexual abuse prevention game, allows other players within their class to visit their in-game spaceships and has some cooperative play elements (Stieler-Hunt et al. 2014). The teacher can consider how to effectively use built-in elements offered by the game and also purposefully architect how students interact with it to increase student affinity. Teachers can also use games to encourage student leadership through allowing students to help each other with elements of game-play and allocating responsibilities to individual students for setting up and caring for game equipment. Rotation of leadership responsibilities and using game-play rosters can ensure equity in the benefits from using games. Further, playing games in class also helps to establish an affinity between the student’s home and school worlds.

**Inspiring**

Focus Questions: Where does the game draw its inspiration? What can we liken the game to in the out-of-game world? What can this game inspire our students to do/create/discover/discuss/reflect on in and outside the game? What additional in and out-of-game tasks can we set for players that will help achieve curricula goals?

The **Inspiring** component of the GUMC refers to additional teachers-designed tasks authentically related to the game that progress curricula goals. These non-game mandated tasks can include additional in- and out-of-game tasks set by the teacher or collaboratively negotiated with students. In this way, the game acts as a stimulus inspiring students to do, create, discover, compare with or reflect on something authentically game related. The best examples of **Inspiring** will allow students to apply their game-learnings to their out-of-game world. Whilst planning is essential to make the most of games in the classroom, teachers can also look for organic “teachable moments”.

**VIGNETTES**

The vignettes below outline three instances of how educators who participated in this study used digital game-play in their classrooms. These three distinct examples are a subset of the practices used to derive the GUMC and are provided to help the reader understand how to apply the GUMC. For each vignette, a brief description is given of the game(s) used and how they were used. To further illustrate the application of the GUMC, the teachers’ practises are explained according to each section of the GUMC.

**Vignette 1. Endless Ocean**

An Australian year 7 primary school class (11-12 year olds) was part of a national Reef Guardian School program. Students played the game *Endless Ocean* (Nintendo 2007) to help them understand ocean environments and the creatures that live in the ocean. This vignette’s most significant feature is that the game contributed to the curriculum intent of building conservation attitudes by building a sense of awe and wonder of marine environments (see **Influencing**) and the motivation the students had to play the game carried into a number of related out-of-game tasks (see **Inspiring**). Further, the way students were tasked to play the game helped them to engage more deeply with the game and arguably learn more from the game than someone playing purely for enjoyment (see **Discovering Affinity**).
Practising
In *Endless Ocean* the player character is a professional scuba diver. The game’s core mechanic involves scuba diving a coral reef to explore different marine environments and discover and learn about marine animals. Undertaking player-directed tasks within the virtual marine environments helps students develop familiarity with diverse marine environments and the creatures that live there. This level of familiarity achieved through interactions with the virtual environment would be difficult to achieve cost-effectively in other ways.

Influencing
The curriculum intent was for students to develop empathy for marine environments in order to influence their ongoing values and beliefs about marine conservation. In *Endless Ocean*, the aesthetics of diving in the reef promote a sense of awe at the beauty, magnitude and diversity of marine environments and the creatures within them. The game dynamics producing this aesthetic include the ethereal music that plays as the player character dives in the ocean, the number of different marine areas the player can explore and the peaceful ways the player character can interact with the marine life (eg. feeding them). The children played the game in small groups and the teacher noted that they were extremely immersed in the game to the point that some of the children were looking into the TV screen to “find” things. Sometimes the children would pretend that they were swimming too, to the point that their breathing would be affected whilst they played. The game was providing an experience that had an authenticity for the players.

Discovering Affinity
The teacher extended the fiction of the game to the classroom by changing the name of their regular reading groups to “diving groups”. These small groups were allocated time to play each school week so that each group received equitable game time. Each group continued the previous group’s save game so that the whole class was playing one continuous game. This worked for *Endless Ocean* but may not work for games where narrative or progressive skill development has more of a focus. The group played the game in their regular classroom space. When something significant happened in the game, the teacher would allow the class’s focus to switch briefly from their schoolwork to the game-screen.

Within the diving groups students had roles. One student was using the game controller, others were watching carefully for creatures they were trying to find and another was the “navigator”. The students experienced difficulty navigating the environment using the in-game navigation map so the teacher printed maps of the game environment from a game fan website and students used these to navigate the game’s extensive marine environment. Playing *Endless Ocean* also became a map-reading exercise with a purpose. Resources available about the game located outside of the game environment, such as the game maps, are called paratexts.

Another paratext the teacher used from a game fan site was the complete list of sea creatures appearing in the game. Each child selected a different creature on which to give a presentation for assessment. This gave the “diving groups” another focus for their dive missions alongside their in-game missions. Allowing students to choose their own animal also helped catered for diversity in the students (eg. some chose sharks, some chose penguins, some chose fish).
The use of this game built an affinity based in the shared experience the game evoked. For example, when a “diving group” found a particular sea creature everyone had been waiting to see, the whole class stopped to watch and they sent a student to find the advisor teacher so that she could share in the experience. This affinity group was grounded in the game-play experiences and was co-crafted by the game designers, the teachers and at times, the students. Collectively, the students played the game more deeply than most players would. Through the game the children developed an appreciation of the many and varied creatures living in the ocean and experienced the types of reef environments in which different creatures reside.

**Inspiring**

The use of *Endless Ocean* inspired the class in many ways. The initial out-of-game task set by the teacher was to give a presentation on a sea creature that appeared in the game. This task changed the way the students played the game because, alongside the game-issued challenges, they were also looking for the creature that each group member had chosen. In the game, each time the player finds a creature and interacts with it, the game provides a small piece of information about that creature until the player has three pieces of information. Once unlocked, this information can be revisited at any time via an in-game “sticker book”. Elusive creatures led students to do internet searches to discover the environment the creature would most likely reside and then use the game map to navigate to the location. For some creatures, they discovered that they only appear in that environment at a certain time of year, so they had to wait for the game to progress to that time of year before the creature could be found.

The class produced an award-winning dance performance based in a marine environment for a national dance competition. Whilst constructing the dance set, the students had developed such a deep knowledge of the marine habitats that one student noticed that one of the sea creatures had been placed in a habitat that it did not belong. The teacher recalls the student saying, “Mrs <teacher name>, this is a sting-ray. It doesn't live here. You can't have it!”

Students freely chose to paint sea creatures for their art projects much to the surprise of the specialist art teacher. The class members also had an in-depth discussion about where this reef could be located in the world.

**Vignette 2. Mathematics drill and practice games with a difference**

An Australian year 9 middle school class (13 – 14 year olds) used a series of network-play Mathematics drill and practice games on the Nintendo DS handheld gaming console. The teacher brought two Nintendo DS consoles into the classroom every day with a number of network-play Maths games that can take up to 16 consoles at a time. These had been purchased personally by the teacher. Students could also optionally bring in their own Nintendo DS consoles from home.

The games were used as a reward for completing work tasks assigned and in each class a new student was allocated to be the “leader” for that day until everyone had a turn at being the “leader”. The leader was responsible for the devices and could choose who got to use the consoles on that particular day. Anyone using the consoles had to have finished their work before they were permitted to play. For those who were not “chosen” on that day, other enriching activities were available such as using robotics kits.
Ostensibly, this is a standard use of drill and practice games as a reward. However, the teacher decided to use this as an opportunity to develop leadership skills, build stronger relationships between students and encourage students to take responsibility for their own classroom learning (see Discovering Affinity).

Practising
The games used encouraged the development of automaticity with basic number facts and were designed to be a part of their preparations for nationwide standardised mathematics testing. The games used allowed players to use the Nintendo DS’s networking capabilities to form adhoc networks to compete against each other in real time. The ability to compete in real-time with their friends was motivating.

Influencing
This section does not apply to this example because although the teacher was using games to influence student attitudes, it was towards completing school work generally, not to anything specifically relating to the game content.

Discovering Affinity
Throughout the year, the teacher rotated the “leader” on a daily basis so that there was equitable sharing of the leadership role. The teacher explained that “even the worst behaved child” got to be the leader. The teacher further explained that when it was a student’s turn to be the leader, s/he “could take anyone around him or her to participate in his little group, the catch being that anyone he chose had to have finished all their work and their homework”. Before starting she impressed on the students the importance of the leadership role, “These (consoles and games) are mine. I bought these. I bought the software so one person is going to take complete responsibility… It is your responsibility to return everything to me in the way that I gave it to you so that it's ready for the next class… If anything happens, that's the end.” The teacher noted the many benefits of this approach, including students were motivated to do their school work, looking forward to Mathematics class regardless of their academic ability level and building stronger student rapport and leadership within a class that had been presenting challenging behaviour.

Inspiring
This model of adoption encouraged a “difficult” class of students to get their regular school work done.

Vignette 3. Using “nice talk” with Wii Fit
An Australian P-1 multi-age primary school class (4 – 6 year olds) played Wii Fit (Nintendo 2007) in groups in 15-20 minute blocks. The teachers used this experience to help students understand the benefits of daily exercise as well as improve their social skills. What is most significant about this vignette is that when the teachers looked at how Wii Fit would be played as a class, they realised that a portion of the children’s time would be spent waiting their turn. The teachers chose to use both the physical activity and the waiting time purposefully (see Practising) and this translated into students being nicer to each other (see Discovering Affinity).

Practising
The teachers used Wii Fit to promote both physical activity and the use of manners. Wii Fit provides opportunities for players to engage in a series of physical challenges in yoga, strength training, aerobics and balance games using the Wii Balance Board thus providing
a whole body gaming experience. *Wii Fit* is a single player game so its use required adaption to be suitable for a classroom environment. The teachers had students use the game in small groups which meant that waiting your turn was something the students were required to do. The teachers encouraged students to use this waiting as an opportunity to use manners and “nice talk”. This included using “please” and “thank you”, waiting your turn and encouraging others. These teachers took what was seemingly only a physical activity and turned it into an opportunity to teach social skills.

**Influencing**

*Wii Fit* was used to promote the health benefits of exercising every day as well as the benefits of being kind to each other.

**Discovering Affinity**

By having the students play the game in groups and modelling “nice talk” prior to playing, students were able to develop positive social skills. The teachers noted that students transferred these social skills to other classroom activities.

**Inspiring**

The additional out-of-game activities that accompanied the game were explicit teaching of key concepts around the healthy movement of bodies and social skills and reflection checklists and discussions. Points covered in explicit teaching sessions on healthy movement included the benefits of exercise, being “huffy puffy” (the term the teachers used in the classroom to describe heavy breathing), muscles getting tired, and signs that your body is working to its optimum when exercising. During explicit teaching sessions on social skills, the teachers modelled the use of “please” and “thank you”, waiting your turn and encouraging others.

Simple personal checklists allowed students to reflect on their physical activity and their use of social skills. The physical activity checklist explored how the student was feeling, how tired their muscles were, how they were breathing and whether they had a good exercise workout. The social skills checklist indicated whether the students had been able to wait their turn nicely, whether they had said “please” and “thank you”, and whether they had encouraged other players.

**DISCUSSION**

In this section we investigate how the GUMC aligns with three learning theories and learning constructs: modified *Situated Cognition Theory*, building a *Sense of Community* and elements of Noddings (2002)’s *Model of Moral Education through Care Ethics* which is based in *Care Theory*. We chose *Situated Cognition Theory* because it has been identified as a useful lens for games’ research (Van Eck 2006). *Sense of Community* and elements of Noddings (2002)’s *Model of Moral Education through Care Ethics* were chosen because they provide more specific insights than is achievable through broad, generalized theory. Finally, we explore the integral role of the teacher in implementing the GUMC.

**Modified Situated Cognition Theory**

*Situated Cognition Theory* proposes that attaining knowledge is dependent on social and physical contexts at the time of learning and therefore it cannot be assumed that conceptual knowledge can be applied to new situations (Brown et al. 1989, Greeno 1989). Critiques of *Situated Cognition* agree that learning is grounded in the concrete situation in which it is attained but posit that sometimes knowledge can be applied to new contexts (Anderson
et al. 1996). Further, researchers have identified factors that will influence knowledge/skill transference. Four factors are listed in the first column of Table 1.

<table>
<thead>
<tr>
<th>Factors influencing knowledge/skill transference</th>
<th>Alignment of GUMC with this Factor</th>
<th>Related aspects of the GUMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Providing enough practice (Anderson et al. 1996)</td>
<td>Games themselves provide opportunities to practice learnings in a low consequence environment.</td>
<td>Practising</td>
</tr>
<tr>
<td>2) Providing a number of contexts in which the knowledge/skill is learned (Bjork and Richardson-Klavehn 1989)</td>
<td>Additional out-of-game tasks can provide new contexts in which to apply new knowledge and skills.</td>
<td>Inspiring</td>
</tr>
<tr>
<td>3) Drawing attention to the cues of where the knowledge/skill is applicable (Anderson et al. 1996)</td>
<td>The teacher can draw attention to where the knowledge/skills are applicable during class discussions and debriefs of game-play.</td>
<td>Inspiring</td>
</tr>
<tr>
<td>4) Using concrete examples to illustrate abstract concepts (Anderson et al. 1996)</td>
<td>Games often provide concrete examples that can be used to illustrate abstract concepts. For example, the mathematics game <em>Lure of the Labyrinth</em> has a series of mini-games that can be solved intuitively by students. Its accompanying lesson plans use these concrete examples to introduce abstract mathematical concepts.</td>
<td>Practising, Inspiring</td>
</tr>
</tbody>
</table>

**Table 1:** Alignment of GUMC with Factors influencing knowledge/skill transference

Table 1 explains how the Practising and Inspiring sections of the GUMC address these 4 factors. Games present opportunities to practice learnings and provide concrete examples teachers can draw on to help students understand abstract concepts. The teacher can also provide additional contexts for students to use their new knowledge/skills. They can also make explicit the implicit cues for appropriate situations to apply the knowledge/skill.

**Sense of Community**

Osterman (2000) defines a Sense of Community as a “feeling of belongingness within a group”. Researchers use different labels such as “belonging” and “relatedness” to describe similar psychological experiences (Osterman 2000). Motivational researchers (Connell and Wellborn 1991, Deci 1991) posit that relatedness is one of three basic psychological needs essential for humans to grow and develop. However, traditional organisational practices of schools can cause students to feel alienated from schooling (Osterman 2000, Earl et al. 2013). The first column of Table 2 lists Osterman (2000)’s strategies to facilitate building a Sense of Community between class members.

<table>
<thead>
<tr>
<th>Strategies to facilitate building a Sense of Community</th>
<th>Alignment of GUMC with this Strategy</th>
<th>Related aspects of the GUMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) frequent positive interaction between students featuring helping behaviours rather than competitive behaviours</td>
<td>The GUMC prompts teachers to explore different ways students can engage with the game (eg. in groups, pairs, individually in a network, individually but with peer support) to facilitate positive interactions between students.</td>
<td>Discovering affinity</td>
</tr>
<tr>
<td>2) using cooperative learning</td>
<td>By looking at different ways students can play games in the classroom, it is possible to facilitate cooperative learning.</td>
<td>Discovering affinity</td>
</tr>
<tr>
<td>3) promoting dialog</td>
<td>Out-of-game tasks may include classroom discussions that relate the game to real life.</td>
<td>Inspiring</td>
</tr>
</tbody>
</table>
Games themselves allow players to achieve in their own way. The extra in- and out-of-game tasks can also provide autonomy. For example, in the *Endless Ocean* unit, students gave presentations about a marine animal of their choice appearing in the game, thus catering for students interested in predators as well as students interested in “cutesy” animals.

Table 2: Alignment of the GUMC with Strategies to facilitate building a Sense of Community

Table 2 explains how each community building strategy is catered for in the GUMC. The *Discovering Affinity*, *Practising* and *Inspiring* sections of the GUMC provide room to implement these four strategies to build a Sense of Community. For example, having success during game-play can provide the learner with feelings of autonomy. The way the teacher sets up the environment for game-play (e.g. group play, opportunities to help each other) can induce cooperative learning and positive interactions between class members. Further, out-of-game tasks can be used to facilitate dialog between class members.

Games can help to build community through participation in ‘semiotic domains’, that is, games help players understand the signs and symbols of social relevance within a field of action or thought (Gee 2003, Kirriemuir and McFarlane 2004). This shared understanding turns the classroom into an ‘affinity space’ (as described by Gee (2003)), a place where players can share their thoughts and ideas about a game. Providing extra activities around the game (*Inspiring*) and purposefully choosing how students interact with the game (*Discovering Affinity*) can deepen this affinity.

**Noddings’ Model of Moral Education through Care Ethics**

Noddings (2002)’s *Model of Moral Education through Care Ethics* has its foundations in Dewey’s Pragmatic Naturalism. At its core is the belief that students should learn to be cared for and learn to care for “self, intimate others, global others, plants, animals, the environment, objects and instruments and ideas” and that this kind of education will supply a firm foundation for both intellectual and academic achievement (Noddings 2002). Further, Noddings (2002) posits that current educational models can cause important ideas to be lost in the bevy of facts and skills being taught; and that current approaches may neglect the range of human capabilities, especially when students are forced to study areas that they do not care about. In the first column of Table 3 we have identified five points from Noddings (2002)’s *Model of Moral Education through Care Ethics*.

<table>
<thead>
<tr>
<th>Summary of key points of Noddings (2002)’s Model</th>
<th>Alignment of GUMC with key points of Noddings (2002)’s Model</th>
<th>Related aspects of the GUMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Shared meaning - Education should be based on construction of shared meanings not just in processing of information.</td>
<td>The act of students playing the same game together in the classroom builds a shared understanding of the game and related issues which can form the basis of discussions and other classroom activities.</td>
<td>Discovering Affinity, Inspiring</td>
</tr>
<tr>
<td>2) Exploring own interests and capacities - Students can “learn to care” by being permitted to explore their own interests and capacities and not being forced to study areas they do not care about.</td>
<td>Games are a medium that most students enjoy interacting with. They provide new experiences for students. They can broaden students’ horizons and may prompt students to do more research into the game’s subject matter. Games allow players to focus their attentions in areas that are of most interest to them thus building personal capacities.</td>
<td>Influencing</td>
</tr>
</tbody>
</table>

Table 2: Alignment of the GUMC with Strategies to facilitate building a Sense of Community
3) Key components: Modelling, dialogue, practice | Games can provide opportunities for modelling, dialogue and practice. Modelling and dialogue can be provided by non-player characters and other players whilst practice is provided through game mechanics. Teachers can model skills that will be useful for gameplay, use it a basis for dialogue and link to practising related skills out-of-game. | Practising, Inspiring

4) Stories can provide starting points for dialogue | Many games have rich narratives which can be purposefully used to have meaningful dialogue with students. | Inspiring

5) Engrossment and motivational shift – Engrossment indicates that the person’s “attention (is) acutely receptive and directed to the cared for”. As a result of this engrossment, there is a motivational shift towards the needs of the cared for. | Engrossment and motivational shift naturally occur during gameplay. Through carefully planned learning activities (these may be co-planned with students), the engrossment and motivation can also translate to related out-of-game activities. | Influencing, Inspiring

Table 3: Alignment of the GUMC with key points of Noddings (2002)’s Model

Table 3 explains how the GUMC links to the five key points of Noddings (2002)’s Model. An appropriate game can provide opportunities for the whole class to build shared meanings (Discovering Affinity), follow their own interests and develop personal capacities (Influencing). Many games also provide opportunities for modelling, dialogue and practice (Practising). Further, good games are easy for players to be engrossed in and motivated to play (Influencing) and teachers can use the game as a stimulus for out-of-game activities (Inspiring).

Integral role of the teacher

In many classrooms games are used as an extra add-on to other schoolwork or possibly just as a reward. Many teachers are not familiar with the games they use in the classroom, they are seen as something that students interact with but not the teacher. Full engagement with the GUMC will require attitude changes towards the role of games in education. The GUMC aims to assist teachers to use games as an integral intertwining part of their curriculum. We want teachers to see games as part of the craft of teaching, not a replacement for the teacher (Kebrichti 2010). Using the GUMC requires the teacher to have familiarity with the games they are planning to use. This familiarity can be achieved through playing the game themselves, watching children play, watching game-play videos and/or engaging with game reviews and other related paratexts.

Without significant teacher involvement, this elaborate intertwining of game and curriculum will not be achieved, therefore games will not be used to their fullest potential in classrooms (Kebrichti 2010, Jenkins 2003). This concurs with much of the research around the recommended role of the teacher when using games in the classroom. For example, Proserpio and Gioia (2007) state that students are capable of making connections between game-worlds and out-of-game worlds but lack the judgment to know which connections to make. Therefore, teachers can help students identify connections and develop rationales for their importance. Similarly Egenfeldt-Nielsen (2005) posits that the teacher’s role is to guide students to find deeper meanings and see how it applies beyond the game-world. Van Eck (2006) calls this using and making “teachable moments” through an understanding of the game-play and designing meaningfully linked out-of-game activities that can be used pre-, post- and during game-play.
CONCLUSIONS
We have presented the Game Uses Model for Classrooms (GUMC) to help teachers explore the usefulness of a digital game in diverse classroom contexts. Primarily, it is a planning tool to help teachers richly and elaborately intertwine games into their curriculum. It expounds upon intuitive thought processes of teachers who use games regularly. We also believe the GUMC will help game designers understand how games can be used effectively in the classroom and therefore drive game design decisions, especially if the game will have classroom applicability. The GUMC is unique because it is grounded in teaching practices and takes a holistic view of curriculum and education that includes, but also looks beyond, subject content areas to also encompass how games can influence thoughts and feelings, how games can provide a context upon which to build shared understandings and affinity groups, and how games can inspire action in the out-of-game world.

We do not claim that the GUMC is exhaustive. For example, none of the contributing teachers were using games as assessment items. Therefore, we invite others to evaluate the GUMC for usefulness and build upon it.

Embracing digital games in meaningful ways can create a more potent schooling environment where students are engaged, focussed and motivated to learn. We believe that the GUMC could be instrumental in helping teachers realise the potential of games in their classrooms. Until teachers embrace all of the strengths of digital games, the potential impact of games in the classroom will not be fully realised.

ACKNOWLEDGMENTS
We thank our study’s participants. Without their know-how, hard work and willingness to share, the GUMC would not have been possible. We are in awe of your great work.

BIBLIOGRAPHY


Section C.

STUDY 2
ACADEMIC PAPERS
Paper 5.

The Teachers’ Role in Child Sexual Abuse Prevention Programs: Implications for Teacher Education

Laura Scholes, Christian Jones, Colleen Stieler-Hunt, Ben Rolfe and Kay Pozzebon

Published 2012 in Australian Journal of Teacher Education 37(11), 6.

Notes
The paper has been reproduced from the Australian Journal of Teacher Education with the following modifications: page numbers have been changed to keep them consistent with the rest of this document and the header “Paper 5” has been added to each page.

This paper explores the most theoretically coherent and empirically evidenced accounts of key considerations for effective child sexual abuse prevention programs in schools. This paper was written during the early development phases of Orbit. It summarises some of the key findings of a literature review on the topic of child sexual abuse prevention programs in schools.
The Teachers’ Role in Child Sexual Abuse Prevention Programs: Implications for Teacher Education

Laura Scholes
Christian Jones
Colleen Stieler-Hunt
Ben Rolfe
Kay Pozzebon
University of the Sunshine Coast

Abstract: In response to the diverse number of child sexual abuse (CSA) prevention programs currently implemented in school contexts, this paper examines key considerations for selecting such initiatives and the multiplicity of understandings required to inform facilitation of contextually relevant prevention curriculum. First, the paper examines concerns about the lack of explicit professional development for educators concerning child protection, and the need to develop understandings about prevention program best practices within pre-service and in-service training. Second, drawing on a systematic review of literature, the paper identifies five key considerations to inform teachers’ selection and facilitation of CSA prevention curriculum in school contexts. Third, the paper advances calls by Wurtele (2009) and presents CSA prevention ‘best practices’ overview and ‘model programs’ list for professionals such as teachers.

Introduction

Child sexual abuse (CSA) is a widespread complex social issue with many professional groups in a position to play a key role in prevention. The significant role of teachers is increasingly being recognized, with an understanding that educators’ participation is crucial to the success of any school based prevention initiative (Arnold & Maio-Taddeo, 2007; Briggs, 2005; Finkelhor, 2009; MacIntyre & Carr, 2000; Matthews, 2011; Sanderson, 2004; Wurtele, 2009). Interest in the prevention of child sexual abuse has culminated in a diversity of initiatives implemented nationally and internationally (Finkelhor, 2009; Sanderson, 2004; Tomison & Pool, 2000). While school based programs are prevalent, one significant challenge to overcome is the heavy reliance on child-focused prevention efforts that put the onus of responsibility onto children (Wurtele, 2009). Indeed, Wurtele (2009) argues it is time for adults to contribute to protecting children and create safe environments by implementing multicomponent, coordinated, preventive interventions that include educators, parents, and practitioners as interdisciplinary approaches offer the greatest potential for keeping children safe from sexual abuse. In this paper, it is argued that teachers have a significant role to play in the prevention of CSA and have a responsibility to develop understandings that contribute to the safety of the children in their care. Increasingly, teachers are expected to facilitate CSA prevention in classrooms and it is
argued there is a need for teachers to develop core understandings and knowledge of ‘best practices’ around child sexual abuse prevention to enable informed considerations when selecting and implementing programs (Wurtele, 2009). Professional development in the area of CSA prevention, however, is seriously lacking (Mathews, 2011) and evidence suggests a critical need for training. To this end, teachers need in-depth knowledge to empower them to carry out their responsibilities in the protection of children, with professional development recommended pre-service and in-service (Arnold & Maio-Taddeo, 2007; Mathews, 2011; Mathews, Walsh, Rassaﬁani, Butler & Farrell, 2009; Walsh, Laskey, McInnes, Farrell & Mathews, 2011; Watts & Laskey, 1997).

The lack of professional development in child protection in the Australian context has been well documented (Arnold & Maio-Taddeo, 2007; Mathews et al., 2009; Watts & Laskey, 1997). For example, within Australian tertiary institutions research indicates low levels of pre-service teacher training (Watts & Laskey, 1997; Mathews, 2011) with 76.6 per cent of tertiary teacher education programs not addressing child protection (Arnold & Maio-Taddeo, 2007). Also of concern are findings that teachers continue to feel ill-equipped to deal with child protection issues that arise within Australian schools (Brown, 2008; Goldman & Grimbeek, 2008; Mathews, 2011; Scholes, 2000, Walsh, Farrell, Schweitzer & Bridgstock, 2005) with these sentiments echoed Internationally (Ireland – McKee & Dillenburger, 2012; New Zealand – Briggs, 2005, 2007; United States - Kenny, 2004; United Kingdom - National Society for the Prevention of Cruelty to Children [NSPCC], 2012). Adding to the dilemma, many child protection initiatives are imported from overseas (United States, United Kingdom, Ireland, New Zealand) and are not adequately evaluated or adapted for Australian contexts. Coupled with the large number of diverse prevention programs being administered within schools, teachers are uncertain about what constitutes appropriate prevention initiatives (Sanderson, 2005; Tomison & Pool, 2000).

Moving beyond problematics and towards maximising the role of educators in CSA prevention, this paper advances calls for explicit and comprehensive teacher professional development and argues for training that includes an understanding of the intricacies of school based initiatives and key considerations to inform choices. This training is critical as CSA program evaluations have found that teacher commitment and quality has a significant impact on the success of a program. In a New Zealand evaluation children taught by ‘committed teachers’ demonstrated almost double the gains on eight variables compared to children taught by ‘uncommitted teachers’ (Briggs & Hawkins, 1994; Sanders, 2006). Variables in the study included recognizing feelings of being unsafe, identifying trusted adults and conﬁdence in stopping and reporting unsafe behaviours (Briggs & Hawkins, 1994). It is inferred that to be committed to the facilitation of appropriate prevention strategies teachers also need to be informed concerning evidence based best practice. To address the need for teacher training concerning appropriate prevention strategies, the paper will detail findings from a systematic review of current child protection research that identified five key considerations for maximizing the potential of CSA curriculum and pedagogical strategies. This approach aims to disrupt simplistic notions of CSA prevention and contribute to understandings that support teachers to keep what is best for students foremost in decision making (Darling-Hammond & Bransford, 2005). This review, following Evans and Beneﬁeld (2001), focused on research by prominent leaders in the ﬁeld and assessed initiatives when possible. Evaluation was considered significant as this component has been identiﬁed as critical for child welfare and child
protection programs (Lamont, 2009; Sanderson, 2004; Tomison & Pool, 2000; Wurtele, 2009). Prior to discussion of the review and five key considerations identified, the paper foregrounds the complexities of the current situation concerning CSA, teacher training and prevention programs.

Background

Estimating the magnitude of CSA is challenging, although the incidence within Australia and other western nations such as the United States and the United Kingdom is considered a serious problem (Australian Institute of Health and Welfare [AIHW], 2010; U.S. Department of Health & Human Services [DHHS], 2005; Wurtele, 2009). While the real prevalence of CSA is expected to be far higher than those reported, within the Australian context alone there have been approximately 3500 recorded incidence each year for the past five years (AIHW, 2006, 2010).

Concern about the magnitude of child maltreatment in Australia has culminated in the Prime Minister recently announcing a national inquiry into institutional responses to child sexual abuse (Australian Government, 2012). This concern highlights the need for child protection initiatives that support both professional training for those responsible for children and prevention programs for children themselves. Currently in Australia there is no national approach to child protection training to address the occurrence of child sexual abuse and no systematically implemented training program within schools. While it has recently been reported that enhancing systems for protecting children should include a multidisciplinary joint training approach for all professionals working with children (ARACY, 2009), current initiatives tend to be disseminated inconsistently, with no overarching framework addressing key messages, strategies, content and delivery. Further, many initiatives are not evidence based and are not supported by ongoing evaluation (Finkelhor, 2008; Sanderson, 2004; Tomison & Pool, 2000).

Reports in the United States indicate teachers have a tendency to self-report a lack of awareness of the signs of CSA and appropriate reporting protocols (Kenny, 2001, 2004). This finding resonates with outcomes of more regional research indicating that teachers in Queensland were generally unsure about their ability to accurately identify child abuse and neglect, with CSA the most difficult type of child maltreatment for teachers to accurately identify (Mathews, 2011; Scholes, 2000; Walsh et al., 2005). Encouragingly, evidence suggests that teachers with training (at either or both pre-service and in-service levels) have higher confidence in their ability to identify indicators of CSA, and higher self-rated knowledge of the indicators of CSA than those without training (Mathews, 2011). Within the Australian context Mathews (2011) has called for a focus on building teachers’ knowledge of the social context of child sexual abuse and its indicators, developing teachers’ understanding of the reporting duties, helping to instil positive attitudes towards reporting obligations, and ensuring that teachers are familiar with the practical mechanisms through which reporting duties are discharged. Educators, however, report many barriers to detecting and responding to child abuse and neglect with inadequate education identified as a critical factor (Abrahams, Casey & Daro, 1992; Baxter & Beers, 1990; Hawkins & McCallum, 2001; Hazzard & Rupp, 1986; Reiniger, Robison & McHugh, 1995). This lack of education is evident in pre-service teacher training and in-service teacher professional development (Arnold & Maio-Taddeo, 2007; Mathews, 2011; Scholes, 2000; Walsh et al., 2008; Watts & Laskey, 1997).
Training

As teachers engage in the process of fulfilling professional obligations and embed teaching and learning of child protection content in their repertoire of practice, it is argued that educators also require understanding of what constitutes relevant and effective CSA prevention initiatives. While parents and other professionals have a significant role to play, the teachers’ role in prevention is critical as children are mandated to attend school and educators have the most contact with children outside their families. Teachers also witness the social and emotional indicators, inappropriate behaviours and academic consequences (Cromer & Goldsmith, 2010; Jones, Trudginer & Crawford, 2004) and are in a position to implement prevention strategies as part of their daily classroom pedagogy and practice. Significantly, teachers who have knowledge, skills and positive attitudes towards child protection can contribute to the safety of their students (Wash et al., 2011; Walsh, Rassafiani, Mathews, Farrell & Butler, 2010).

Teachers require training to become empowered to comply with child protection requirements and agendas. The federally funded Australia Centre for Child Protection study raises concerns by reporting that over three-quarters of Australian teacher education programs do not included distinct child protection content (issues of prevention, identification and response to child abuse and neglect) and when training is evident the majority include less than seven hours across the course (Arnold & Maio-Taddeo, 2007). While there has been limited empirical research into Australian teachers’ training about CSA and teacher confidence at identifying sexual abuse and knowledge of its indicators (Mathews, 2011), research available indicates that to comply with teachers’ reporting obligations, teachers need to have positive attitudes towards the reporting duty and knowledge about the social and educational context of sexual abuse (Mathews et al., 2009). While there are barriers to teachers’ reporting, such as fear of misreporting and consequences of reporting, teachers with recent training report more confidence recognising indicators, are more knowledgeable about reporting duties and more prepared to follow reporting guidelines (Mathews, 2011; Hawkins & McCallum (2001). A recent review of approaches to pre-service child protection education at three Australian universities suggests that content can be positioned as a separate entity or integrated within a related unit of work such as Family Studies (Walsh et al., 2011). While there were advantages and disadvantages identified for both approaches, to develop deep, rather the surface level, subject matter and expertise there is a need for in-depth content delivered by teacher educators with robust child protection knowledge (Walsh et al., 2011).

Advocates have provided a strong case for locating child protection in pre-service teacher education in Australia (Arnold & Maio-Taddeo, 2007; Mathews et al, 2006; Mathews et al., 2009; Mathews & Kenny, 2008; Walsh et al., 2011). Walsh and colleagues (2011) suggest four reasons for embedding sophisticated levels of child protection content in pre-service education programs. They argue that there is empirical evidence of the effects of maltreatment on children’s learning at school; teachers’ have legal duties to report child abuse and neglect under legislation and/ or duty of care; teachers’ have duties to report under education policy, and; there are links between child maltreatment, children’s right and social justice. As this need for child protection education has been clearly articulated previously (Arnold & Maio-Taddeo, 2007; Mathews et al., 2006; Mathews et al., 2009; Mathews & Kenny, 2008; Taylor, 1997; Taylor & Hogkinson, 2001; Walsh et al., 2011, Watts & Laskey, 1994)
this paper moves forward to consider what constitutes appropriate school CSA prevention initiatives and understandings that need to be embedded in professional development.

Explicit training concerning CSA would appear most urgent as teachers’ report to be least prepared to address this form of abuse (Walsh et al., 2005). The need for training was further highlighted recently by Mathews (2011), who conducted a study in Australia, consisting of 470 participants, to find descriptive evidence about teachers’ experience of pre-service and in-service training about CSA, their self-rated estimation of the adequacy of the training to both identify indicators of sexual abuse and to follow reporting procedures, their self-rated confidence in identifying indicators of CSA, and their self-rated knowledge of indicators of sexual abuse (Mathews, 2011). Findings of this study indicated that relatively few teachers received any pre-service training about child sexual abuse, that in-service training is more frequent but still far from universal, that teachers’ self-ratings of the adequacy of these training efforts indicates capacities in knowing and identifying indicators of child sexual abuse can be substantially improved. While significantly all five sectors involved in the study indicated low proportions of teachers had received pre-service training about CSA, the lowest proportion was 14.0% in Queensland government schools.

As current initiatives in Queensland include directives for teachers to implement CSA prevention in classrooms (with new curriculum initiatives in Queensland such as the Daniel Morcombe Child Safety Curriculum), we would argue it is imperative teacher training moves beyond identifying indicators of CSA to consider what constitutes effective prevention initiatives, including key considerations for selecting and implements prevention curriculum.

Prevention Programs

While CSA prevention programs have at times been directed at educating teachers, the majority of prevention strategies are directed at children in school-based programs (Finkelhor & Dziuba-Leatherman, 1995; Sanderson, 2004). In the United States a national survey of children found that 95% of children had received prevention programs in the form of school based initiatives (Finklehor & Dziuba-Leatherman, 1995). According to Sanderson (2004), programs have tended to focus on three core aspects, namely, the definition of sexual abuse and notions of ‘good’ and ‘bad’ touching; methods of refusing, saying no and escaping situations; and encouraging children to tell a trusted adult. There are four additional messages evident in some programs such as; the child is not to blame; addressing the misconception that perpetrators are strangers; what constitutes caring touch; and the issue of secrecy (Sanderson, 2004). Of concern is the generic make up of many of these programs and that programs have been imported to Australia from the United States but have not been adequately evaluated in either country.(Tomison & Pool, 2000). While there is inconsistency in content, presentation and duration of these programs, many Australian students are participants in these initiatives (Tomison & Pool, 2000). According to Wurtele (2009), while there is existing empirical evidence attesting to certain programs effectiveness at teaching children personal safety concepts and skills, what is needed is a ‘best practices’ or ‘model programs’ list for consumers.
The difficulties associated with identifying what constitutes best practice in CSA prevention programs have been recognized (Finkelhor, 2009; Lamont, 2009; Sanderson, 2004). However the potential benefits of children participating in self-protection programs are significant, as children who participate in these programs have been found to show significant gains in knowledge and skills that may be helpful in avoiding sexual victimisation (Kennny, 2008; Wurtele & Owens, 1997). In order to identify what constitutes best practice and present a list of key considerations, a systematic review of research around CSA prevention programs in schools was conducted. Following this review a number of programs were considered and summarized (see Appendix A).

Method

Protocols were developed to implement a systematic unbiased review of literature around CSA prevention for children (MacDonald, 2000). Following Evans and Benefield (2001), clear and explicit steps were taken to conduct a systematic search to address the general research question: What is the most theoretically coherent and empirically evidenced account of key considerations for effective CSA prevention programs in schools?

Electronic database searches were conducted to identify school based CSA prevention programs facilitated within a range of western countries (United Kingdom, United States, Ireland, New Zealand and Australia) from 1980 onward. The review included a number of protocols (McDonald, 2000), including selection of articles from peer reviewed journals and publications by researchers well known for expertise in the field. The focus was on evaluated programs with the review encompassing primary research articles, peer reviewed journals, book chapters, reports and unpublished documents. The search identified five broad areas for further examination including; diversity of target population of the program; characteristics of the program including delivery; key messages in the program; decay in knowledge and negative side effects; and program evaluation. Following identification of the five domains, the review involved searching electronic databases to identify relevant academic literature published relating to these areas. Protocols also included ongoing meetings by three members of the review team, with background knowledge in child protection, to make final decisions and come to a consensus on inclusions. Following development of the five key considerations a number of school based prevention programs were identified. These programs were collated and a table constructed to provide an overview of programs and key messages, including the target age of children for each program, and the level of support required to deliver the program (e.g., in class with teacher support, trained facilitators delivering program etc). This table is included in Appendix A. More comprehensive information about each program was also considered (e.g. published papers, information sheets, training notes, teacher/parent information, child worksheets, website information etc). This table provides an initial starting place for educators considering school based prevention programs; however, it is imperative that teachers stay informed about updated information and examine these programs in relation to their specific contextual settings.
Findings

The systematic review identified five key considerations for teachers implementing CSA prevention in the classroom. While not discrete, these imperatives offer broad areas to guide a critical approach to what is considered important in efforts to overcome challenges confronting school efforts to address child protection.

Key Consideration One: Target Population of the Program

Asdigian and Finkelhor (1995, p. 413) argued against “a unifaceted or one-size-fits-all approach to victimization prevention”. Key messages presented in CSA prevention programs need to be tailored to suit the diverse population of children. These subgroups include: children with problem sexual behaviour (O’Brien, 2009), Indigenous children (O’Brien, 2009), children with disability (Briggs & McVeity, 2000), children from low socio-economic communities (Briggs & Hawkins, 1996), children of different ages (Tutty, 2000) and should take into consideration issues associated with gender (Asdigian & Finkelhor, 1995; Briggs, 2007; Paine & Hanson, 2002).

Boys as a group require a specific consideration as they tend to believe that they have less risk being sexually abused (Dziuba-Leatherman & Finkelhor, 1994; Briggs, 2007) and can be less enthusiastic about the program (Finkelhor & Dziuba-Leatherman, 1995). Boys, however, are more likely than girls to be abused in group situations, for example while attending camps, clubs, in sports changing rooms and within school settings (Briggs, 2007). In the past, typical programs have primarily targeted girls (Sanderson, 2004), and consequently boys are less likely to make gains from such programs (Asdigian & Finkelhor, 1995). Also, there are gender differences in protective strategies, with boys more likely to use physical forms of protection (e.g., fight back; Asdigian & Finkelhor, 1995). Furthermore, boys are more likely to blame themselves for being abused and not being able to stop it (Sang, 1994), are less likely to regard the abuse as victimisation (Sanderson, 2004) and less likely to disclose sexual abuse (Gries, Goh, & Cavanaugh, 1996; Paine & Hansen, 2002).

The age of the students involved in the program needs to be considered as younger children are more likely to use passive or escape forms of protection (Asdigian & Finkelhor, 1995) and older children have been found to retain more information than younger children (Finkelhor & Strapko, 1992; Tutty, 2000). While younger children benefit more than older children from the programs, younger children tend to forget what they have learnt (Rispens, Aleman, & Goudena, 1997). Differences in areas such as cognitive development, relations to authority figures, and moral development (Tutty, 2000) need to be considered and there are developmental issues for groups such as preschoolers (see Sanderson, 2004, for a detailed review).

Socio-economic status is also a contextual consideration, and children from lower socio-economic status groups have been identified as potentially at greater risk of sexual abuse due to their lower knowledge and skill base (Briggs & Hawkins, 1996) and experience fewer gains from CSA prevention programs (Briggs & Hawkins, 1996; Rispens et al., 1997). This outcome has been attributed to differences in the degree of parental involvement, with less involvement identified for students from lower socio-economic status (Briggs & Hawkins, 1994; Sanderson, 2004).

There is also a need to be aware that prevention programs may involve ‘vulnerable’ children, for example, friendly, open children, trusting, receptive, needy
children (Conte, Wolf, & Smith, 1989), those with low self-esteem (Sanderson, 2004). Significantly, there is a need to be cognisant that the population of children may include previously abused children and those in current abusive situations (Currier & Wurtele, 1996). Positive relationship with a supporting adult may enhance the resiliency of children who have been abused or are at-risk for being abused. Abused and neglected children sometimes get the reputation for being behaviour problems while research suggests that challenging behaviour can be a cry for help that concerned teachers need to learn to recognize (Appelstein, 1998).

Key Consideration Two: Characteristics of the CSA Prevention Program

Sanderson (2004) identifies a number of characteristics of effective programs:
- active participation;
- explicit training;
- group training;
- standardised key messages taught by trained instructors;
- integrated into school curriculum;
- repeated presentations in programs and follow-up training;
- multisystemic nature of the programs including parental involvement and teacher education; and
- programs also need to include features known to enhance learning and retention of prevention education (e.g., improve self-esteem and problem solving).

These program characteristics have consistently been supported in the literature. For example Davis and Gidycz’ (2000) meta-analysis of 27 studies using school-based child abuse prevention programs concluded that better programs were ones which allowed active participation, used behavioural skills training, and had more than three sessions.

A further meta-analysis of 13 studies using school-based programs by Duerr, Berrick and Barth’s (1992) recommended whole school rather than classroom interventions, teacher training, and community integration. MacIntyre and Carr’s (2000) review of 30 studies in which training modalities (i.e., group training, behavioural training, and video training) were evaluated, found that programs which used more than one training modality resulted in greater knowledge and skills. Furthermore, programs of longer duration were found to be more effective.

Rispens et al.’s (1997) meta-analysis of 16 school based programs concluded that programs that included explicit training in self-protection skills were more effective and that the amount of instruction time also was related to program outcomes. Wurtele (2002) proposed that effective prevention programs ensure that the materials match the specific needs of the community. Furthermore, prior to the program implementation a needs assessment is conducted, individuals and groups in the community are consulted, presenters are trained, and parental involvement is utilised before, during, and after the program). Additional considerations included ensuring programs are developmentally appropriate, grounded in theory and research, include rehearsal, role-play, practice, are sensitive to audience characteristics, include multiple presentations and periodic reviews, include homework and parental involvement, and include comprehensive evaluation (Wurtele, 2002).
### Key Consideration Three: Key Messages in the Program

Building on the work of Wurtele (2002) Table 1 provides an overview of key messages for inclusion in a CSA school based prevention program.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Key Messages</th>
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| Clarifies and Describes | Clarifies and explains sexual abuse in a clear and direct manner. Assists in clarifying between ‘right’ and ‘wrong’, ‘normal’ and ‘abnormal’ behaviours. Distinguishes appropriate and inappropriate touching, including positive and negative feelings about touching.  
  • Children can identify touching and non touching forms of abuse  
  • Includes identification of private parts and correct anatomical terms, including body ownership.  
  • Children can describe private and public parts of the body  
  • Describes possible offenders (examples including authority figures, family members, known adults, strangers, and older children).  
  • Children know that sexual abuse offenders can be anyone  
  • Describes potential victims (examples of both males and females, all races, ages, sizes, and includes children with disability)  
  • Children know that sexual abuse can happen to anyone  
  Identified Problem: Some CSA prevention programs do not acknowledge that sexual abuse may not involve touch at all (e.g. exposure to pornography, exhibitionism) (Sanderson, 2004) |
| Grooming             | Distinguishes between early grooming behaviours, including ways of establishing emotional ties and developing relationship, and later perpetrator behaviours including tricks and bribes (gifts, rides), and threats and blackmail.  
  • Children are aware of some techniques offenders may use  
  Identified Problem: Abuse being perpetrated by a familiar adult. Sexual abuse more frequently involves a grooming process, taking place over a prolonged period (Smallbone & Wortley, 2001). Programs typically do not teach children the skills to resist grooming (Sanderson, 2004).  
  Identified Problem: Seeing abuse as a sudden attack by a perpetrator. Some CSA prevention programs present abusive situations as involving a sudden attack by a perpetrator (Bagley, Thurston & Tutty, 1996; Conte, Wolfe & Smith, 1989; Sanderson, 2004). They either fail to deal with the issue of abuse by a familiar adult, or overemphasize the risk posed by strangers (Kaufman & Zigler, 1992). Molestation by strangers is relatively infrequent, with strangers believed to be responsible for only 10–20 per cent of reported child sexual assaults (McCurdy, 1994). |
| Secrets              | Considers good and bad secrets  
  • Children know that bad secrets need not be kept  
  Identified Problem: Failure to acknowledge the possibility of pleasurable responses may increase victims’ guilt and shame about their experiences and encourage keeping incidents a secret (Finkelhor, 1984). Boys in particular have been found to attribute abuse as their fault and are reluctant to report (Briggs, 2005). Additionally, boys have a tendency to keep abuse secret whether asked to do so or not and these issues are not traditionally addressed in CSA programs (Briggs & McVeity, 2000). |
| Feelings (Don’t teach) | Not to rely on good or bad feelings |
identified problem: often csA programs teach children to trust their feelings as indication that something is not right. these feelings can include butterflies in the stomach and sweaty palms. however many csA prevention programs do not acknowledge ‘bad’ touch may actually feel good (Whetsell-Mitchell, 1995). failure to acknowledge the possibility of pleasurable responses may increase victims’ guilt and shame about their experiences, thereby encouraging children to feel responsible for their abuse (Sanderson, 2004).

strategies and skills

| Children develop a support network of trusted adults |
| Children ask trusted adults to be part of their support network. |
| Children and adults have opportunities to build their rapport through communicating |
| Children have a healthy self concept |
| Children understand safe body rules |
| Confident could stop and report unsafe behaviour |
| Aware can reject inappropriate and unwanted touching |
| Children know what to do if they experience sexual abuse |
| Children appreciate individuality and differences, and respect of self and others |

identified problem: An understanding of inappropriate use of adult authority. Some csA prevention programs do not explain the appropriate use of adult authority. Perpetrators often use their authority to sexually exploit children (Bogat & McGrath, 1993) because children find it difficult to resist the authority of an adult (Pelcovitz et al., 1992).

Disclosure

| Children know how to select their support network of trusted adults. |
| Children know to keep telling their support network of trusted adults until something is done. |
| Children practice skills training to enhance confidence and knowledge of ways to disclose. |
| Children have confidence in trusted adults to help |
| Children recognise that teachers can help children to stay safe. |

identified problem: An important step in any csA program is facilitating safe disclosure. Children need to be able to identify responsible/safe adults in order for safe and effective disclosure to occur (Machtyre & Carr, 1999). Disclosures are often fraught with difficulties especially for disabled children and many programs do not specifically address the disclosure process (Briggs & McVeity, 2000).

No Fault

| Children know that sexual abuse is illegal and never their fault |
| Children understand, value and act according to their self worth |

identified problem: Long-term psychological harm of csA includes post-traumatic stress disorder, guilt and self-blame (Gaskill & Perry, 2011). Boys especially are often made to feel that abuse was their fault (Briggs, 2005). To address guilt and self-blame prevention programs should include additional material designed to improve children’s self esteem as children will low self-esteem are more likely to suffer sexual victimisation and believe it is their fault (Daro & Salmon-Cox, 1994; Krivacska 1990; Sanderson, 2004)

Table 1. Key Child Abuse Prevention Messages
In addition, researchers have identified that some concepts are more easily learnt, for example, what is abuse and recognition of body parts (Finkelhor & Strapko, 1992). Concepts more difficult to learn include abuse from known adults (Finkelhor & Strapko, 1992; Tutty, 2000) and assertiveness issues (Tutty, 2000). However, the age of the child must be considered when considering challenging and sensitive CSA concepts. Tutty’s (2000) review of literature highlighted that preschoolers respond differently than older children in areas such as who are strangers, saying ‘no’ to authority figures and distinguishing appropriate touch. They also have specific needs in terms of understanding that known adults can be perpetrators, knowing the rules for keeping secrets and breaking promises and understanding that they are not at fault (Tutty, 2000). Sang (1994) however argues that the key message of saying ‘no’ may not be effective due to the strength, power and motivation of the perpetrator; grooming; the child’s lack of understanding of the situation; and the possible dependency relationship between the child and the perpetrator.

Key Consideration Four: Decay in Knowledge and Negative Side Effects

Knowledge decay and potential negative side effects must also be considered when adopting CSA prevention programs. Knowledge gains are consistently found immediately after the completion of the program (e.g., Davis & Gidycz, 2000; Duerr Berrick & Bath, 1992; MacIntyre & Carr, 2000; Rispens et al., 1997). However, Finkelhor and Strapko (1992) identified decay in knowledge as time passed (with follow up measures ranging between studies from 1 month to 18 months). This pattern of results suggests that CSA prevention programs are effective; however to maintain knowledge gains children need have follow up training. Finkelhor and Strapko’s (1992) review of 25 studies found that there were relatively few, if any negative effects, though there were some children who showed increased fears or anxieties. The issue of negative reactions to prevention programs was one area that Finkelhor and Dziuba-Leatherman (1995) investigated in their telephone interview of 2000 young people (1042 boys and 958 girls) and their caretakers. Finkelhor and Dziuba-Leatherman (1995) found that some children and caretakers experienced fear and/or worry as a result of the program. However, they found that those participants who indicated experiencing fear and/or anxiety also rated the program more positively, useful, and were more likely to use the skills that they had been taught. Finkelhor and Dziuba-Leatherman (1995, p. 137) concluded that fears and anxieties may have been disclosed by children and parents in response to an appropriate outcome that is not necessarily bad. Currier and Wurtele’s (1996, p. 84) study of previously abused children found that these children can learn prevention concepts “without exhibiting negative side effects”. Furthermore, they found that previously abused children learnt prevention concepts and skills and parents reported a reduction in their child’s sexually explicit behaviour (e.g., use of sexually explicit words). While Currier and Wurtele’s (1996) study included only 26 children (of which 13 children were previously abused), these findings are promising.

Key Consideration Five: Program Evaluation

Program evaluation is considered a significant component of any CSA prevention program and one element that appears to require more rigorous development. According to Finkelhor (2009), as yet, there are no true evidence-based
programs in the area of preventing child sexual abuse. He goes on further to argue there are no studies based on strong research designs that have looked specifically at the question of preventing abuse although there are a variety of supportive empirical findings so far. Research shows, however, that young people can and do acquire the concepts developed in a program (Finkelhor, 2009; Zwi, 2007). Programs may also promote disclosure and help children not to blame themselves, although studies are inconclusive about whether education programs reduce victimization (Finkelhor, 2009). Of concern is that very few (2.6%) child safety programs have included a comprehensive evaluation that compare the prevention knowledge of students involved in a program with a counterpart control group not involved in the program (Sanderson, 2004). The presence of a control group has been advocated as essential in demonstrating gains in student’s pre- and post-test knowledge are related to the program, rather than a pre-test sensitising effect or other incidental factors (Davis, 2000; Lamont, 2009). Evaluations without control groups have also been found to overestimate program effectiveness (Davis & Gidycz, 2000; Sanderson, 2004). While non-experimental evaluations can provide useful information about participant characteristics and program implementation, they appear to demonstrate little about the effectiveness of the prevention training (Melton & Flood 1994; Tomison & Poole, 2000).

One of the commonly used programs in Australian schools is the Protective Behaviours program (PB) which has been adapted from North America. However the program has been criticised because it is has not been rigorously evaluated with a limited evaluation suggesting that only 30% of the oldest students (8 and 9 year olds) made any knowledge gains and that these knowledge gains were few and limited (Briggs & Hawkins, 1994). Facilitating poorly tested or untested programs is of concern as prevention programs can engender complacency in parents who think their children have been protected by participation in a program (Sanderson, 2004; Wurtele, Kvaaternick & Franklin, 1992).

Three common types of evaluations are process, impact and outcome evaluations (Lamont, 2009; Tomison, 2000). These types of evaluations are intrinsically linked and can be used either independently or together (Tomison, 2000). Process evaluations consider how the program is being delivered and identifies areas that are working well and areas that require change to enhance delivery (Lamont, 2009). Generally this process does not include input from participants. Action research, however, is an approach to process evaluation that consists of integrating basic research, program development and evaluation into a continuous, cyclical process (Lamont, 2009; Tomison, 2000). This approach incorporates input from program participants to help improve practice providing information so evaluators can update and change aspects of the intervention that are deemed ineffective. This approach cannot measure outcomes or impact of program participation (Lamont, 2009). Alternatively, impact, the most common type of evaluation, measures whether an intervention has an effect on participants in accordance with the intervention’s aims and objectives (Lamont, 2009). Finally, outcome evaluation assesses the long-term effectiveness of an intervention program and underlying goals such as child abuse prevention (Holzer, Higgins, Bromfield, Richardson & Higgins, 2006; Lamont, 2009). With any type of evaluation the goal is to demonstrate whether a program is effective or not. It is important to clearly note that elements considered significant for any type of rigorous evaluation are pre- and post-test designs, a comparison group and follow-up testing (Davis, 2000; Davis & Gidycz, 2000; Lamont, 2009; Sanderson, 2004).
Discussion

This review highlights the importance of five key considerations in any CSA prevention initiative. Including these key understandings in pre-service and in-service professional development for teachers would provide a knowledge base to inform curriculum and pedagogical decisions. Further, this knowledge would contribute towards empowering teachers to navigate the lack of consistency in content, presentation and length of programs in Australian school contexts (Tomison & Pool, 2000). While not proposing a simplistic list of recommendations this review provides initial development of ‘best practices’ for teaching professionals. Specifically, the emphasis is on equipping teachers to build upon their existing knowledge to develop CSA prevention experiences for students and implement strategies, tools and resources. In keeping with the five key considerations it is hoped that when teachers are making decisions about CSA prevention curriculum strategies and content they will be aware and consider the diverse subgroups of children, implement a program which is sensitive and appropriate to the needs of the children for which the program is aimed, utilise program characteristics and key messages identified as best practice, address the issue of retention of knowledge and skills and the potential for decay of knowledge and skills, and negative side effects, and consider program evaluation.

Studies have found that involvement of multiple stakeholders, including children, teachers, and parents (MacIntyre & Carr, 2000; Wurtele, 2002) is essential to positive outcomes. This raises significant issues for teacher training as enlisting parental involvement in school based approaches is critical. Furthermore, while a community approach to CSA prevention provides stronger learning opportunities for students, facilitating coordinated prevention that includes interdisciplinary involvement requires evidenced based understandings and training.

Limitations

It is acknowledged that the literature and program review has limitations. While a comprehensive examination was facilitated, the literature in this area is still developing and the list of programs was not exhaustive. As noted earlier there are a large number of diverse prevention programs being administered within schools, including many initiatives not adequately evaluated. Despite limitations, findings inform discussions about understandings that would support teachers in their role as they facilitate CSA prevention initiatives in classrooms. This review also provides impetus for further research concerning effective CSA curriculum and pedagogies in classrooms. Specifically, research is needed concerning the development, trial and evaluation of CSA prevention programs based on the findings considered in this paper.

Conclusion

This paper considered the widespread issue of CSA, the increasing role of teachers in prevention and the professional training necessary to empower educators to facilitate initiatives as they carry out their responsibilities in the protection of children. As the teacher’s role in school based initiatives is increasingly recognized (Arnold & Maio-Taddeo, 2007; Briggs, 2005, 2007; Finkelhor, 2009; Mathews, 2011,
Wurtele, 2009) there is a need for teachers to develop in-depth understandings and knowledge of ‘best practices’ around child sexual abuse prevention to enable informed selection and implementation of programs (Wurtele, 2009). We have argued however that there is a lack of professional development in child protection in the Australian context (Arnold & Maio-Taddeo, 2007; Mathews et al., 2009; Watts & Laskey, 1997) and hence a critical need for training. Drawing on evidence from a systematic review of literature five key considerations were identified as imperatives to guide the selecting and facilitating of appropriate child protection curriculum in schools. As interest in CSA prevention impacts on schooling pedagogies nationally and internationally it is argued that teachers need to be adequately prepared with in-depth understandings of the diversity of target student populations, characteristics of prevention programs; key messages in programs; decay in knowledge and negative side effects; and issues in program evaluation. An overview of what constitutes appropriate programs was offered with recommendations for these understandings to be embedded within in-pre-service and in-service professional development. As this paper has demonstrated, what constitutes best practice in CSA prevention programs is characterised by complexities and requires informed reflection on curriculum and pedagogical choices. It is argued that these understandings should be included in teacher education training highlighting the need for initiatives based on research and subsequently contextualized for the diversity of student population.

References


Cochrane Database of Systematic Reviews, Issue 3. Art. No.: CD004380. DOI: 10.1002/14651858.CD004380.pub2.
**Appendix A. General Overview of CSA Prevention Programs**

The table includes each program, key messages for the program, the design of the program, research publications / evidence that inform the program, and any evaluation of the program (publications etc).

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<th>Research/Evidence</th>
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| Behavioral Skills Training Program (BST) Wurtele | Teaches children:  
- that they are the bosses of their bodies  
- to identify the location of their “private parts”  
- that it is acceptable for children to touch their own private parts, as long as it is done in private  
- that it is appropriate for doctors, nurses, or parents to touch children’s private parts for health or hygiene reasons  
- that otherwise, it is not okay to have their private parts touched or looked at by a bigger person, especially if that person wants them to keep it a secret  
- that it is wrong to be forced to touch a bigger person’s private parts  
- that a bigger person’s inappropriate touching of the child’s private parts is never the child’s fault | Five lesson program and includes a number of stories. Two versions:  
Teacher version usually taught to children in a group format (4 to 7 children per group). Instruction, modelling, and behavioural rehearsal.  
Parent version: includes a script and accompanying pictures, a “Token Time” packet, stickers, and crayons. Parent works through the materials with the child. The “Token Time” packet contains 30 program objectives. | Originated Colorado, USA.  
Wurtele, S. K., et al. (1986).  
| BITSS of Protective Play | 5 Bits of protective behaviours:  
- body ownership | Parent friendly, in-the-home, model of CSA prevention, play- | Sanderson, J. (2004). Child-Focused Sexual Abuse | Only general evaluation data provided on |
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| Imaginif Pty Ltd | • intuition  
• touch  
• say no  
• support network | based model. Twelve page, colour illustrated tutorial full of game and activity ideas.  
• parent resource  
• play tutorial  
• children’s chapter book  
Website indicates internal evaluation has taken place with adult workshop attendees’ prior and following attendance. Pre evaluations have supported a low level articulation of protective behaviour concepts, themes and strategies. Post evaluations have supported a positive 100% retainment rate of the 5 BITSS elements. Eighty percent of participants used creative protective behaviour play skills within the first week after the workshop. |
| Ages: primary school age | The key concepts are:  
1) each person owns and is responsible for his/her own body and feelings;  
2) sexual abuse and touching; and 3) self-protection and reporting sexual abuse | The new edition of the C.A.R.E. Kit (Your Body is Yours student book, My Body Song book, resource guide, puppets, poster, bookmarks, and message/discussion cards) is available in English and French from RespectED: Violence & Abuse Prevention  
The C.A.R.E. Kit program presents 12 key messages, presented in 15- to 20-minute daily lessons over three to six weeks. Message Cards present the concepts and suggest discussion and activities for each | The Child Abuse Research and Education Productions Association in Surrey, British Columbia originally developed the C.A.R.E. Kit program, a child sexual abuse prevention program for children from kindergarten to grade 3, in the early 1980s. The RespectED division of the Canadian Red Cross took over responsibility for the program in September of 2000 and extensively revised the kit. | Program and control.  
<p>| C.A.R.E (Challenge Abuse through Respect Education) Kit | | | | |</p>
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| Ditto’s Keep Safe Adventure  
Bravehearts  
Ages: prep to grade 3 | 7 topics:  
- feelings  
- instincts  
- private parts  
- dealing with yucky feelings  
- saying no  
- secrets  
- helper plan | Half hour show in schools  
Complementary activity book  
CD Rom with parent guide for purchase. | Unknown.  
Feedback and input on the resources obtained from many professionals in the field of child safety (e.g., Qld police, Emeritus Professor Freda Briggs, and Dr Jennifer Sanderson) | Rohen, C. (2011) Ditto’s Keep Safe Adventure School-based Program-Summary Report.  
2008 evaluation completed by Evans and Peck Services:  
A range of measures were used to assess the learning outcomes, including a pre and post evaluation questionnaire administered before and after the program was held in the participating pilot schools, recorded observations during the program and surveys conducted with participating teachers |
| Feeling Yes, Feeling No | The key concepts covered include:  
1. reacting to touches with positive or negative feelings  
2. adults can help if sexual assault occurs;  
3. and sexual assault is never the fault | The program consists of three instructional 15-minute interactive videos taped by the National Film Board of Canada in 1985. It is available in French as "Mon Corps, C’est Mon Corps". The videos include children from various | Developed in 1980 by the Green Thumb Theatre for Young People in Vancouver. Objectives of the program are: to identify different responses to being touched; how children can seek help if touch | Program and wait list control groups.  
Psychoeducational groups to teach children sexual abuse prevention skills. Journal of... |
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<td>Personal Safety Success Training (P.S.S.T.) Program Mallee Sexual Assault Service</td>
<td>2 fundamental rights: • we all have the right to feel safe all the time • nothing is so awful we can’t tell someone about it Concepts: • early warning signs</td>
<td>The P.S.S.T. program covers a discussion on general safety, including problem solving exercises followed by concepts - worksheet style. It is delivered in schools.</td>
<td>Reviewed all available Protective Behaviours program literature.</td>
<td>Unable to locate any evaluations.</td>
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<td>Ages: primary and secondary school</td>
<td>Ages: 7 to 12 years</td>
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<td>Personal Safety Australia</td>
<td>• personal space / boundaries&lt;br&gt;• body ownership&lt;br&gt;• safe / unsafe touches&lt;br&gt;• sexual abuse&lt;br&gt;• safety strategies&lt;br&gt;• safe / unsafe secrets&lt;br&gt;• trick, threats and bribes&lt;br&gt;• assertive training&lt;br&gt;• safety on the internet&lt;br&gt;• friendships&lt;br&gt;• networks</td>
<td>There is a version of this program adapted for people with an intellectual disability that consists of 8 sessions.</td>
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<td>Protective Behaviours Program</td>
<td>2 themes:&lt;br&gt;• we all have the right to feel safe all the time&lt;br&gt;• nothing is so awful that we can’t talk to someone about it&lt;br&gt;7 strategies:&lt;br&gt;• theme reinforcement&lt;br&gt;• network review&lt;br&gt;• one step removed&lt;br&gt;• protective interrupting&lt;br&gt;• persistence&lt;br&gt;• risking on purpose&lt;br&gt;• the language of safety</td>
<td>Protective Behaviours - was initially developed in 1970's in the state of Wisconsin, U.S.A. Peg Flandreau West who wrote the Basic Essentials manual for use in Australia in 1988. Resources on website include teacher and parent resources, DVD/video, books for children, and posters</td>
<td>Unknown.</td>
<td>Based on the manual, “The basic essentials: Protective behaviours anti-victimization and empowerment process” by Peg Flandreau West</td>
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<td>Safe Start: Protective Behaviours for Children</td>
<td>Four core safety concepts:&lt;br&gt;• I am special, so are you&lt;br&gt;• safety is my right&lt;br&gt;• my body belongs to me&lt;br&gt;• I can get help</td>
<td>Training of police officers and community members (e.g., parents and teachers), workshops in schools which include opportunities for participation and practice&lt;br&gt;Program includes an awareness session, presenter training and</td>
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<td>Overview and not evaluation: <a href="http://www.kidsmatter.edu.au/programs-guide/protective-behaviours/">http://www.kidsmatter.edu.au/programs-guide/protective-behaviours/</a></td>
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<td>Safe T: Protective Behaviours for Young People</td>
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<td>Personal Safety Australia</td>
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<td>Ages: kindergarten, primary, and secondary</td>
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<td>Summary of Protective Behaviours Program</td>
<td>2 themes:&lt;br&gt;• we all have the right to feel safe all the time&lt;br&gt;• nothing is so awful that we can’t talk to someone about it&lt;br&gt;7 strategies:&lt;br&gt;• theme reinforcement&lt;br&gt;• network review&lt;br&gt;• one step removed&lt;br&gt;• protective interrupting&lt;br&gt;• persistence&lt;br&gt;• risking on purpose&lt;br&gt;• the language of safety</td>
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<td>Overview and not evaluation: <a href="http://www.kidsmatter.edu.au/programs-guide/protective-behaviours/">http://www.kidsmatter.edu.au/programs-guide/protective-behaviours/</a></td>
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<td>Speak Up Be Safe is an evolution of the Childhelp Good Touch Bad Touch™ primary prevention education curriculum. &lt;br&gt;Grades 1-6 and their adult community</td>
<td>Children learn 5 body safety rules &lt;br&gt;1. body ownership &lt;br&gt;2. say ‘no’ to abuse, &lt;br&gt;3. who can help you when abused, &lt;br&gt;4. permission to ask adults questions about other’s behaviour, 5. Sexual abuse is never a child’s fault. &lt;br&gt;Materials and techniques such as role-plays reinforce the concepts and offer opportunities to practice the skills.</td>
<td>The school based curriculum utilized web-based tools, focusing on building self-esteem and safety skills within the child, to include addressing today's societal risks children encounter everyday such as internet and cell phone safety. &lt;br&gt;US based, on-site 21 hour training; or Audio Tape Training Kits, available in grade-specific or complete curriculum packages.</td>
<td>Childhelp Speak Up Be Safe evolved from Good Touch Bad Touch™ (GTBT) program delivered in US schools nationally since 1983.</td>
<td>New program launched 2011 undergoing pilot evaluations. &lt;br&gt;Prior evaluations of Good Touch Bad Touch studied effectiveness with kindergarten children pre/post/follow up test and compared to control group. Harvey, P., Forehand, R., Brown, C., &amp; Holmes, T. (1988). The prevention of sexual abuse: Examination of the effectiveness of a program with kindergarten-age children. Behavior Therapy, 19, 429-435.</td>
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<tr>
<td>Stay Safe &lt;br&gt;Child Abuse Prevention Programme, Ireland &lt;br&gt;Ages: senior infants to grade 6</td>
<td>Five modules: &lt;br&gt;• feeling safe/unsafe &lt;br&gt;• bullying &lt;br&gt;• touches &lt;br&gt;• secrets and telling &lt;br&gt;• strangers</td>
<td>School based program with lesson plans, worksheets, songs, and parent’s guide. &lt;br&gt;Dependent on age, 5 to 9 lessons, from 20 to 30 minutes</td>
<td>Stay Safe was introduced by The Child Abuse Prevention Programme (CAPP). CAPP is jointly funded by the Department of Health and Children and the Department of Education and Science. &lt;br&gt;The program was initially developed by a Senior Clinical Child Psychologist in consultation with a Child</td>
<td>MacIntyre, D., &amp; Carr, A. (1999). Evaluation of the effectiveness of the Stay Safe primary prevention programme for CSA. Child Abuse and Neglect, 23(12), 1307-1325. &lt;br&gt;D. MacIntyre, A. Carr. (2000) Prevention of Child Sexual Abuse: Implications of Programme Evaluation Research.. In Child</td>
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| Talking About Touching | • safety rules about cars, bicycles, and pedestrians  
• what to do in the presence of guns or other weapons  
• how to respond to a fire emergency  
• knowing when to ask permission from a caregiver  
• the definition of a safe touch and how to respond to unwanted touches  
• standing up for safety in an assertive manner  
• asking for help in uncomfortable and possibly dangerous situations | 15 to 30 minutes lessons, taught in order, and builds knowledge sequentially  
• photo-lesson cards  
• book and songs  
• safety-step posters  
• video (pre/K only)  
| Teaching Children to Protect Themselves | 5 themes and revision:  
• it’s my body (correct names for body parts)  
• some parts of our bodies are private  
• talking about touching  
• staying safe with strangers  
• secrets  
| Who Do You Tell program | • information on unwanted touch  
• permission to say no to unwanted touch | School based program. Presenters come on-site to deliver the program to schools. | Originally developed by the Calgary Sexual Assault Centre in 1983, the program was taken over | Program vs wait-list control, Tutty, L. M. (1997). CSA |
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<td><a href="http://calgarycasa.com/programs/who-do-you-tell-program/">http://calgarycasa.com/programs/who-do-you-tell-program/</a></td>
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<td>Yello Dyno Wagner</td>
<td>9 to 15 rules, depending on child’s age:</td>
<td>Resources include: CD, handouts and quizzes, posters, lesson plans. Songs and music used. Some rules reinforced and/or expanded in subsequent programs.</td>
<td>Scientifically based on the Nobel Prize winning research of Dr Roger Sperry and the internationally recognised research on children in crisis of Dr Bruce Perry.</td>
<td>The program and overview of evaluation is provided and included experimental and control groups. <a href="http://yellodyno.com/html/research_yello_dyno.html">http://yellodyno.com/html/research_yello_dyno.html</a> Examples of pre and post test results also provided <a href="http://yellodyno.com/graphics/sidway_test_results.jpg">http://yellodyno.com/graphics/sidway_test_results.jpg</a> Number of findings listed on although no peer reviewed academic articles. <a href="http://yellodyno.com/html/research_yello_dyno.html">http://yellodyno.com/html/research_yello_dyno.html</a></td>
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<td>• Tricky People: it’s not what they look like that matters, but what they ask you to do</td>
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<td>• always ask first</td>
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<td>• take three steps back and run like the wind</td>
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<td>• don't keep secrets that make you feel unsafe</td>
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<td>• whom to turn to for help</td>
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<td>• trust your feelings.</td>
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<td>• my body's mine, mine, mine</td>
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<td>• knowledge is power</td>
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<td>• I always have a buddy</td>
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<td>• I can say no</td>
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<td>• too many details – who’s telling the truth</td>
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<td>• too many details – remember the context</td>
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<td>• cut the conversation</td>
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<td>• just say ‘oh well’</td>
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<td>• if someone is too charming, there is a problem, even if it doesn’t show right away</td>
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<td></td>
<td>• PC – privacy and control</td>
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Paper 6.

Serious Games for Learning: Games-based Child Sexual Abuse Prevention in Schools

Laura Scholes, Christian Jones, Colleen Stieler-Hunt and Ben Rolfe

Published 2014 in International Journal of Inclusive Education, 18(9), 934-956. doi: 10.1080/13603116.2013.860195

Notes
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This paper explores the attributes of effective child sexual abuse prevention programs for schools and relates those attributes to the design of a serious game. This paper was written during the early development phases of Orbit. It summarises some of the key findings of a literature review on the topic of child sexual abuse prevention programs in schools and discusses how these could be implemented in the form of a digital game.
Serious games for learning: games-based child sexual abuse prevention in schools

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(Received 23 October 2012; final version received 6 March 2013)

In spite of research demonstrating conceptual weakness in many child sexual abuse (CSA) prevention programmes and outdated modes of delivery, students continue to participate in a diversity of initiatives. Referring to the development of a games-based approach to CSA prevention in Australia, this paper examines empirically based attributes of effective CSA prevention programmes for schools including contemporary pedagogies for learning. The paper draws on findings to inform the conceptual development phase of Orbit, an online, free and equal-access, games-based educational approach to CSA prevention for children aged 8–10 years. First, the paper provides a review of CSA prevention in schools and games-based approaches to key learnings in prevention. Second, an overview of Orbit (the Feeling Safe sexual abuse prevention project) is provided. Finally, implications for the development of games-based prevention programmes are offered and an argument is made for the advancement of games-based prevention resources.

Keywords: games-based learning; contemporary pedagogy; child protection; school programmes; child abuse prevention

Background

Child abuse and neglect is a global issue recognised internationally as a matter of great sociological concern (ISPCAN 2011; UNICEF 2012). As part of national and international agendas, the need for child sexual abuse (CSA) prevention has been advocated widely (Briggs 2005; Renk et al. 2002; UNICEF 2012; Wurtele 2009). While recognised as a concern, the magnitude of CSA is difficult to ascertain. The incidence, however, within western nations such as Australia and the USA is considered a serious social problem (AIHW 2010; USDHHS 2005). Within the Australian context alone there have been approximately 3500 recorded incidences each year for the past five years (AIHW 2010). The incidence of CSA is believed to be higher as many cases are not formally reported or alternatively are not investigated by government authorities (Fallon et al. 2010; Mathews 2011). Research indicates some students are more at risk of sexual abuse as a consequence of their age, gender, disabilities or parental dysfunction (Putnam 2003). For students who become victims of abuse the consequences can be significantly harmful with a range of psychological difficulties found to be more prevalent (Paolucci, Genuis, and Violato 2001; Putnam 2003; Tyler 2002). These negative outcomes have far-reaching affects and may contribute

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to creating pedagogical challenges for teachers when teaching students demonstrating associated academic, behavioural or social problems (Daignaut and Herbet 2009; Veltman and Browne 2001).

In response to increasing evidence of CSA and concern for the consequences for individuals, many prevention programmes were developed in the late 1970’s and widely disseminated in the early to mid-1980’s (Wurtele 2009). Interest in the prevention of CSA culminated in a diversity of initiatives with little consistency in content, delivery or duration (Finkelhor 2009; Sanderson 2004; Tomison and Poole 2000). Of concern is the independent development of diverse programmes that are not evidence based or supported by ongoing evaluation (Finkelhor 2009; Sanderson 2004; Tomison and Poole 2000). Initially the focus of CSA prevention efforts was to alter the knowledge and skills of children through group-based instruction on personal safety, usually conducted in educational settings (Wurtele 2009). School systems provided an avenue to disseminate key messages with programmes potentially reaching large numbers of children from diverse racial, ethnic and socioeconomic groups (Wurtele 2009).

Today there is a wide range of prevention programmes that typically vary in their content, key messages, duration and skills developed (Sanderson 2004; Tomison and Poole 2000). Despite the large number of CSA prevention programmes already in use, many organisations appear to be independently developing very similar programmes often duplicating what already exists (Sanderson 2004; Tomison 2000). While critics are concerned about the diversity and content of programmes, the possible benefits of children participating in some type of self-protection programmes are significant. As key researchers have suggested, prevention programmes have the potential to facilitate substantial gains in knowledge and skills that may result in avoiding sexual victimisation (Kenny 2009; Wurtele and Owens 1997).

Current CSA prevention programmes

Many current CSA programmes have been reported to have conceptual weaknesses (Sanderson 2004). For example, there are programmes that either fail to deal with the issue of abuse by a familiar adult or overemphasise the risk posed by strangers (Kauffman and Zigler 1992). Molestation by strangers is considered relatively infrequent, with strangers believed to be responsible for only 10–20% of reported child sexual assaults (McCurdy and Daro 1994). With an estimated 90% of perpetrators of child sexual assault known to the victims (Trewin 2005) the concept of stranger danger is considered inappropriate for this type of abuse as it does not help prevent CSA when the perpetrator is known to the child (NCMEC 1999; Trewin 2005).

Also of concern are programmes that present abusive situations as involving a sudden attack by a perpetrator (Bagley, Thurston, and Tuty 1996; Conte, Wolf, and Smith 1989). This notion is unhelpful as sexual abuse more frequently involves a grooming process taking place over a prolonged period (Smallbone and Wortley 2001) and programmes typically do not teach children the skills to resist grooming. Significantly perpetrators often use their authority to sexually exploit children and children can find it difficult to resist the authority of an adult (Bogat and McGrath 1993; Pelcovitz et al. 1992). Furthermore, some programmes do not always acknowledge that sexual abuse may not involve touch (e.g. exposure to pornography, taking naked photographs, sexualised language) or that ‘bad’ touch may actually feel good (Whetsell-Mitchell 1995). They also fail to acknowledge the possibility that at times the abuse may
induce physical responses that are interpreted as pleasant, causing confusion and shame (Briggs 2007). These responses can then increase the victims’ guilt about their experiences, thereby encouraging children to feel responsible for their abuse (Briggs 2007).

In addition, some programme content is designed primarily to meet the protection needs of girls, and may not provide adequate prevention training for boys (Bagley, Thurston, and Tuty 1996; Briggs 2005). Boys require specific consideration as they tend to perceive a lower likelihood of being sexually abused (Briggs 2007) and can be less enthusiastic about protection programmes (Finkelhor and Dziuba-Leatherman 1995). Boys have also been found to be less willing to disclose sexual abuse (DeVoe and Faller 1999) and to rate programmes less highly than girls, believing they are less helpful, less interesting and less likely to contain any new information (Finkelhor and Dziuba-Leatherman 1995). Boys also deal with issues associated with gender stereotypes that include males being viewed as the instigator of CSA rather than the victim and beliefs that sexual experiences with older women is not abusive (Coxell et al. 1999; Stoltenborgh et al. 2011). These beliefs influence disclosure due to fear of peer homophobia, confusion about sexuality and the fact that victimisation is the antithesis of boys’ personal identity as a male (Briggs 2005; Dziuba-Leatherman and Finkelhor 1994; Romano and De Luca 2001).

Although there are conceptual concerns related to many current CSA prevention programmes, a well-designed prevention programme can be effective in teaching children child protection skills (Kenny 2009; MacIntyre and Carr 2000; Sanderson 2004; Wurtele 2002; Wurtele and Owens 1997). According to a review by Sanderson (2004), effective programmes involve children in explicit training in preventive behaviours and disclosure; involve group training using standardised materials, content and administration; have programmes taught by trained instructors; can be of longer duration, involving repeated presentations; can be incorporated into the school curriculum; and involve a multisystemic approach, which targets children, parents and teachers. Repetition of concepts in additional sessions has also been advocated and reported to add significantly to learning (NCMEC 1999; Tutty 2000).

Presentation of CSA prevention programmes can also vary with effective programmes involving active student participation and engagement so participants can practice the intended behaviour or skill (NCMEC 1999). Progressively developing key learnings and skills within a fun and engaging environment, however, presents some challenges. A games-based approach to CSA prevention has the potential to provide such an environment. A games-based approach also responds to broader policy discourses that position schools as central in developing digital literacy within the Australian context, encouraging teachers to make Information Communication Technology integral to student learning (see for example Australian Government 2010; Brand 2012; DEECD 2011). The possibilities associated with a games-based approach also include addressing social justice issues as the programme expands to include marginalised children (through isolation or disability), children of both genders, teachers and parents. As students in regional and remote areas may be at greater risk of sexual abuse than children in other areas (Neame and Heenan 2004), an online game has the added benefit of providing equal access to all.

A games-based approach to learning CSA prevention skills

Internationally, there are many initiatives encouraging the use of digital games in learning (DEECD 2011; Haas 2008; Johnson et al. 2011; Learning and Teaching Scotland
Increasingly, games are considered a powerful and exciting medium for engagement and learning while also facilitating increased opportunities for equity of access (DEECD 2011; Gee 2003, 2008; Ito et al. 2009; Jenkins et al. 2006; Klopfer, Osterwil, and Salen 2009). Within the Australian context the recent Innovating with Technology Research Trials focused on games-based learning to investigate the extent and nature of the impact of games-based learning on teacher practice and student learning (DEECD 2011). Many examples of the positive impact of games-based learning on students learning were identified including increases in student motivation, confidence, effort, involvement in their learning and willingness to take risks in their own learning (DEECD 2011). Findings from this Australian project reinforce prediction in the 2011 Horizon Report: K-12 Edition, which claims that games-based learning is one of the emerging technologies most likely to be adopted in the coming years as a means for empowering student in their learning (Johnson et al. 2011). Indeed, it has been argued that introducing video games into the classroom encourages and facilitates improvement in engagement, cognitive development, higher-order thinking, literacy learning, problem-solving, decision-making, multitasking and collaboration (DEECD 2011; Futurelab 2009; Gee 2008; Klopfer, Osterweil, and Salen 2009).

Recognition of the potential of games-based learning has encouraged the application of serious games within educational contexts, which involve learning the sorts of domains, skills or content associated with school and health (Gee 2008). An inclusive and useful way of describing game-based learning in schools is the use of games as resources to support the educational aims, objectives and planned outcomes of teachers who understand that games are an important medium in contemporary culture and young people’s experiences (DEECD 2011; Futurelab 2009). Games have the potential to provide ideal learning environments as they facilitate problem-solving spaces that use continual learning pathways to mastery through entertainment and pleasure (Gee 2008). One of the many benefits of digital games is the facilitation of opportunities to ‘learn through doing’ (Kirriemuir and McFarlane 2004). Significantly, gaming has been viewed as intensely pro-social in ways that normal classroom routines are often not. The social element provides opportunities to enhance relationships between students, as well as between students and their teachers (Futurelab 2009). The potential of computer games to support the development of relationships within the school setting has been identified by teachers as perhaps the most valuable outcome of game-based educational activity (Futurelab 2009). As relationship building is an important factor for CSA prevention a games-based approach has the potential to strengthen healthy relationships with peers and teachers.

Custom-built computer games also have the potential to develop broader relationships and learning opportunities as game play is extended into the home to involve trusted adults or parents. This is a significant consideration for CSA prevention programmes when positive relationship building is considered a critical component to child protection. It is important that CSA prevention programmes actively involve children, parents, teachers, officials, key organisations and the wider community (NCMEC 1999). Best practice includes facilitating conversations around CSA and encouraging strong support networks between friends and trusted adults to remove secrecy, resources that encourage looking after each other and closer school, teacher, parent, child relationships. Gee (2008), Jenkins et al. (2006), Prensky (2005 2007) and Ito et al. (2008) argue that there is an increasingly important role for games in learning. Moreover, while traditionally believed to be dominated by boys and young men, the video games market is changing with girls and women entering the playground of
games (Brand 2003). In fact, new media forms have altered how students socialise and learn, and raise a new set of issues that educators, parents and policy-makers need to consider when conceptualising learning (Ito et al. 2008). When digital games are well designed they provide learning paradigms that evoke a sense of pleasure for the player where the player wants to learn to achieve mastery (Gee 2008). Qualities that facilitate productive learning include: players learning by experience and receiving immediate feedback with opportunities to try again; opportunities for players scaffolding; opportunities to learn from the experiences of other players and opportunities to learn about ‘ways of being in the world’ (Gee 2008). They also include richly designed spaces to help the player solve a problem, model environments, behaviours and concepts that allow the player to be led from concreteness to the abstract (Gee 2008).

The prevalence of gaming and PC’s in homes also encourages a games-based approach to learning about CSA. In 2011, The Centre for New Media Research at Bond University and Interactive Games and Entertainment Association of Australia (iGEA) commissioned a national survey to provide data on the importance of games in Australia (Brand 2012). A random sample of 3533 woman, men, girls and boys who represented their households responded to more than 80 questions in an online survey. The data were published as the Digital Australia 2012 (Brand 2012). According to the report, 99% of Australian households owned a PC and 94% of children aged between 6 and 15 played digital games (Brand 2012). Of note, digital games are no longer a solitary activity as 70% of those surveyed indicated that they played digital games with others either in the same room or over the Internet (Brand 2012).

In this paper, we argue that a games-based approach to CSA prevention provides a powerful medium for learning, including opportunities for using standardised materials and content, repeated over time within school curriculums. Additional benefits include opportunities for offering online games that are free and provide equal access, while fostering a fun and engaging educational approach to CSA prevention for children. To this end, the team worked on the Feeling Safe project to develop an online games-based CSA resource called Orbit. This paper draws on the broader Feeling Safe project and presents preliminary findings concerning best practice in CSA prevention.

The research context

The Feeling Safe, Child Sexual Abuse prevention project was funded by the Queensland Police Service (QPS), Daniel Morcombe Foundation (DMF) and the Telstra Foundation in response to CSA in Australia. This issue was brought to public attention with the disappearance and murder of Daniel Morcombe in 2003, and more recently with international child pornography investigations. The Feeling Safe project has developed and piloted an integrated resource around the education of children aged 8–10, parents and the wider community concerning issues of sexual abuse. The project aims to result in a long-term reduction in the incidence of CSA by increasing children’s awareness of situations that might impact upon their personal safety and empowering them with the ability to act, while cultivating stronger community knowledge and support for and about CSA prevention.

The project is being developed in Queensland, Australia, and involves a collaboration between the QPS, the DMF, the Telstra Foundation, the Department of Child Safety (DCS), Sunshine Coolum Services Against Sexual Violence Inc (SCSASV)/Laurel House and the University of the Sunshine Coast. The team also works with
the Education Queensland (EQ) to embed the Feeling Safe game, Orbit, in schools nationwide and to maximise access for those children isolated both socially and geographically from sexual abuse prevention education and support.

The Feeling Safe project responds to the research question: What are the theoretically coherent and empirically evidenced attributes of effective CSA prevention programmes for schools? From a constructivist theoretical framework (Jonassen, Peck, and Wilson 1999; Perkins and Jones 2004; Schunk 2008) the project develops and builds an evidence-based, online child protection resource which engages students in learning by playing the Orbit computer game. As far as the project team is aware this is the first online child protection resource of this nature to be developed. The Orbit game focuses on progressively developing key learnings and skills and builds on prior knowledge. It does not rely on rules-based rote learning. Instead, it encourages the development of relationships, trust, well-being, self-worth, esteem and confidence and builds support networks and community knowledge and responsibility. Furthermore, the game is being built in collaboration with counsellors, social workers, psychologists and educationalists with key positive and practical learnings for both children and their carers.

The research process

A systematic review of international education and training programmes for CSA prevention in schools was conducted to identify best practice in CSA prevention and appropriate key messages suitable for children. To minimise bias, protocols were developed with criteria for a ‘systematic review’ (MacDonald 2000). Following Evans and Benefield (2001) framework, clear and explicit steps were taken in a systematic search to address the general research question.

First, multi-disciplinary teams conducted reviews to produce research-based reports on CSA prevention and examine issues associated with age, gender, computer games and pedagogy, delivery and disclosures, key messages and teacher training requirements. Second, the game content and project framework was mapped to the available research and practice knowledge in CSA prevention education. Third, pilot tests of Orbit were conducted and an evaluation strategy and evaluation instruments developed. The evaluation process involved playtests in classrooms and formal trials in selected schools. Orbit has received ethical approval for each stage of its development, play testing and formal school trials in Queensland, Australia. Ethical approval has been granted by the University Human Research Ethics committee, the Queensland Department of Education and Training Human Research Ethics Committee and the Brisbane Catholic Education Human Research Ethics Committee.

The Orbit game, lesson plans and website information have been developed in collaboration with social workers, counsellors, psychologists, education researchers, teachers, parents and students. The programme is aligned with the Queensland curriculum and comprehensive lesson plans are provided to assist teachers to use the resources effectively. Teachers can access a dedicated section of the Orbit website which contains additional resources, classroom activities, information about CSA and prevention, and training materials to assist teachers to use Orbit. Teachers can adopt the resources or use without modification, and are also encouraged to extend the lessons and use the website to share these new resources with others. Orbit also recommends and outlines ways that teachers can work with existing relevant support within the schools such as student counsellors and welfare staff to deliver the CSA...
The Orbit website provides practical procedures to assist school staff to appropriately respond to a CSA disclosure, including mandatory reporting requirements and ways to ensure that the child’s well-being is safeguarded.

The project is evaluated with children, teachers, parents/carers and the wider community. The evaluation tools were selected based on international standardised psychological instruments. The Orbit online game is evaluated in multiple school settings to access the short-, mid- and longer-term retention by children of sexual abuse awareness and prevention skills. Retention of knowledge needs to be measured beyond 3–12 months (Zwi et al. 2008), together with any changes in child self-esteem and confidence, and any misunderstanding of skills or cause of child anxiety. The programme will be improved iteratively and continuously to minimise any potential negative risk to child confidence and behaviour. The Feeling Safe project is a complex interdisciplinary initiative which has been conceptualised, developed and trialed over several years. This paper reports the initial findings that emerged during the conceptual and development phase.

Findings

Part 1: attributes of effective CSA school prevention programmes

The conceptual process involved the Feeling Safe team researching and compiling qualities of effective prevention programmes and best practice messages from organisations such as Yello Dyno Inc. (2012), Kids Help Line (2012), Coalition for Children (2012) and evaluated school-based personal safety skills programmes such as Stay Safe (MacIntyre and Carr 2000) and Keeping Ourselves Safe (Briggs and Hawkins 1994), together with information, practical experience and practitioner advice from the QPS, DMF, DCS, SCSASV/Laurel House and other State-based child protection departments and EQ. The review found that specific elements of prevention programmes are associated with student learning. For child safety prevention programmes taught in schools, these successful initiatives include a coherent theoretical basis, active participation, specific skills training, multiple programme components including parental involvement, individualised instruction and lower teacher to child ratios, with full programme implementation repeated many times during the school year (Davis and Gidycz 2000; Luna and Finkelhor 1998; NCMEC 1999; Sanderson 2004; Wurtele 1998). Findings indicated that prevention programme features associated with child learning and retention of sexual abuse messages and skills include (Sanderson 2004):

(1) Active participation. Programmes that encourage active participation of children (e.g. through role-play) are more effective than those that use either passive methods (e.g. traditional teaching and discussions) or no participation (e.g. videos, written materials and self-study) (Davis and Gidycz 2000).

(2) Explicit training. Allowing children to rehearse appropriate behaviours is associated with greater gains in skills and knowledge over non-behaviour techniques (e.g. lectures, videos and puppet shows) (Rispens, Aleman, and Goudena 1997). Without behavioural rehearsal, any transfer of knowledge to behaviour in a potential abusive situation is unlikely (Melton and Flood 1994). The behaviour rehearsal should also include practicing disclosure and sufficient information for a child to understand, plan and implement reporting of abuse (Reppucci and Haugaard 1989).
(3) Standardised materials. Programmes are more effective if they involve standardised materials and are taught by trained instructors (MacIntyre and Carr 2000).

(4) Integrated into schools curriculum. Programmes are more effective if they are integrated into the school curriculum with designated times for delivery and support (Berrick and Barth 1992; McCurdy and Daro 1994).

(5) Longer programmes. Longer programmes involving repeated presentations and followed by summaries to reinforce training are more effective than shorter programmes (Davis and Gidycz 2000; MacIntyre and Carr 2000; Wurtele 1998).

(6) Parental involvement. Children benefit more from prevention training if their parents are also included in the programme (Wurtele 1998).

(7) Teacher education. Programmes that include teacher education to achieve combined teacher, parent and child education are more effective in helping children to retain their prevention training (MacIntyre and Carr 2000).

Table 1 provides an overview of identified qualities of effective prevention programmes and a games-based approach to address these qualities. Findings indicated that best practice and effective prevention also includes appropriate key messages and content. While acknowledging there is no single approach to victimisation prevention (Asdigian and Finkelhor 1995; Finkelhor and Dziuba-Leatherman 1995), the development of core key messages provides baseline content that can be tailored to suit diverse cohorts of children accounting for factors such as age, gender, vulnerability and geographic location. Based on research by Wurtele (2002) and the review of CSA prevention programmes an overview of key messages was compiled. The Feeling Safe development team also identified a number of problematic areas that typically occur in CSA prevention programmes. Some of these areas are problematic because children find it difficult to assimilate what they are learning in a CSA prevention programme with what they already know about the world. Table 2 provides an overview of key messages and problems identified. Key messages in a CSA prevention programme should be aligned to the participant characteristics and diversity (e.g. gender and age). The key messages should be reinforced, repeated over time and, if applicable, expanded. In addition, content should be taught using a variety of learning modalities including knowledge building, simulations, active behaviour skills training (Davis and Gidycz 2000) and participant modelling of skills (MacIntyre and Carr 2000; Wurtele 2002). It is acknowledged that particular knowledge concepts, confidence in managing feelings and developing resistance skills may be challenging for children. Programmes need to address such challenges. Of note, studies have found that the involvement of multiple stakeholders, including children, teachers and parents, is essential for positive outcomes (MacIntyre and Carr 2000; Wurtele 2002).

**Part 2: games-based approach to CSA prevention**

The Feeling Safe team comprising social workers, psychologists, educationalists and technology developers worked with our partners to identify strategies to engage children aged 8–10 in CSA prevention. Our review found that a games-based programme should be deployed primarily on PC platforms and as a free-to-use online resource with download accessible in schools and within the home. School students have regular and increasing access to a PC at school and within their home (Brand 2012; DEECD 2011; ESA 2012; Johnson et al. 2011). Ito and Bittanti (2009) recently found that more than
Active participation

Good games intrinsically motivate players and active participation is required to progress. Some common motivations for playing games include immersion, excitement, reward and challenge. These combine to build an emotional connection between the player and the game; the player has a sense of agency; they feel that their decisions matter and make a difference to the game world. Players may also develop empathy for the game characters.

The Orbit game aims to inspire this enthusiastic participation by using an adventure genre of game that is popular with both genders in its target population of 8–10 years (Brand, Borchard, and Holmes 2008). An adventure game is a playable story, and in the Orbit adventure game, the player creates an avatar in their own likeness. The game takes place on a spaceship and throughout the game, the player ‘beams’ aboard trusted adults from their real life.

Explicit training

Although games give the player a sense of agency, games are also a controlled environment. A game can guide the player’s experience while maintaining their sense of agency and their immersion in the game environment. Therefore, games can provide explicit training through game experiences, consequences of in-game actions, game tutorials and just-in-time training. In addition, the influence of the game can bleed into the real world through guided discussions and other related learning activities. Thus, explicit training can be effectively conducted both in the game and out of the game. Furthermore, as the player already knows and cares about the game, games can be effective stimuli for out-of-game learning.

Standardised materials

The controlled environment of computer games allows materials to be standardised. In addition, they offer immediate feedback and can assess how players are mastering key learnings and offer the opportunity for them to try again if necessary. In addition, learning game designers may also provide standardised accompanying materials such as lesson plans and discussion guides to accompany the game. The Orbit game features a linear story and accompanying mini-games. Although children can customise their interaction with the game, all children will ultimately experience the same game content and at their own pace. Standardised teacher training materials, lesson plans and discussion guides are also provided.

Integrated into schools curriculum

Learning games are increasingly providing flexible models for integration into school curriculum, for example, ‘Gamestar Mechanic’ (E-Line Media 2012) and ‘Lure of the Labyrinth’ (BrainPop 2012). The Orbit game provides teachers with suggested lesson plans for use with the game as well as optional activities. These lesson plans and optional activities map to the elements of the Australian National Curriculum (ACARA 2012). The Orbit game also provides an online community for teachers to share examples of game integration with their curriculum and to exchange teacher-developed resources and activities.

Longer programmes

The Orbit game and associated accompanying activities are designed to be conducted over a number of weeks. The game is

Table 1. Qualities of effective prevention programmes.

| (1) Active participation | Good games intrinsically motivate players and active participation is required to progress. Some common motivations for playing games include immersion, excitement, reward and challenge. These combine to build an emotional connection between the player and the game; the player has a sense of agency; they feel that their decisions matter and make a difference to the game world. Players may also develop empathy for the game characters. The Orbit game aims to inspire this enthusiastic participation by using an adventure genre of game that is popular with both genders in its target population of 8–10 years (Brand, Borchard, and Holmes 2008). An adventure game is a playable story, and in the Orbit adventure game, the player creates an avatar in their own likeness. The game takes place on a spaceship and throughout the game, the player ‘beams’ aboard trusted adults from their real life. |
| (2) Explicit training | Although games give the player a sense of agency, games are also a controlled environment. A game can guide the player’s experience while maintaining their sense of agency and their immersion in the game environment. Therefore, games can provide explicit training through game experiences, consequences of in-game actions, game tutorials and just-in-time training. In addition, the influence of the game can bleed into the real world through guided discussions and other related learning activities. Thus, explicit training can be effectively conducted both in the game and out of the game. Furthermore, as the player already knows and cares about the game, games can be effective stimuli for out-of-game learning. |
| (3) Standardised materials | The controlled environment of computer games allows materials to be standardised. In addition, they offer immediate feedback and can assess how players are mastering key learnings and offer the opportunity for them to try again if necessary. In addition, learning game designers may also provide standardised accompanying materials such as lesson plans and discussion guides to accompany the game. The Orbit game features a linear story and accompanying mini-games. Although children can customise their interaction with the game, all children will ultimately experience the same game content and at their own pace. Standardised teacher training materials, lesson plans and discussion guides are also provided. |
| (4) Integrated into schools curriculum | Learning games are increasingly providing flexible models for integration into school curriculum, for example, ‘Gamestar Mechanic’ (E-Line Media 2012) and ‘Lure of the Labyrinth’ (BrainPop 2012). The Orbit game provides teachers with suggested lesson plans for use with the game as well as optional activities. These lesson plans and optional activities map to the elements of the Australian National Curriculum (ACARA 2012). The Orbit game also provides an online community for teachers to share examples of game integration with their curriculum and to exchange teacher-developed resources and activities. |
| (5) Longer programmes | The Orbit game and associated accompanying activities are designed to be conducted over a number of weeks. The game is... |
two-thirds of the children they interviewed in the USA had game consoles in their home before the age of 10. Data collected as part of Interactive EAA’s 2011 survey of Australian computer game activities in the home found that of 1252 households 99% had a PC (EAA 2012). Moreover, 83% of parents of children aged 18 and under and living with them play computer games. Of parent who play, 88% play with their children, an increase from 70% in 2008 (EAA2012).

Serious games

With a PC games-based approach identified as providing an accessible and appropriate learning paradigm, a comprehensive framework for building a serious game for CSA prevention was required. The Feeling Safe project considers that CSA prevention is fundamental to enhancing students’ well-being. The development of a games-based approach is, therefore, considered a serious game contributing to positive health. Serious gaming for health is an emerging field that complements engaging learning environments with great artwork, great content, great game play, great feedback, great sound, great hook and so on (Csikszentmihalyi 1998; Lazurus 2012). Serious games have the additional challenge over ‘non-serious’ commercial games to include learning opportunities as integral to the game play and story. Therefore, game conceptualisation must include meticulous planning of each element of the game and integrating all elements so that flow is retained (Csikszentmihalyi 1998). The aim is to have
<table>
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| (1) Clarifies and describes   | Clarifies and explains sexual abuse in a clear and direct manner. Assists in clarifying between ‘right’ and ‘wrong’, ‘normal’ and ‘abnormal’ behaviours. Distinguishes appropriate and inappropriate touching, including positive and negative feelings about touching  
  • Children can identify touching and non-touching forms of abuse  
  Includes identification of private parts and correct anatomical terms, including body ownership  
  • Children can describe private and public parts of the body  
  Describes possible offenders (examples including authority figures, family members, known adults, strangers and older children)  
  • Children know that sexual abuse offenders can be anyone  
  Describes potential victims (examples of both males and females, all races, ages, sizes and includes children with disability)  
  • Children know that sexual abuse can happen to anyone  
  **Identified problem:** some CSA prevention programmes do not acknowledge that sexual abuse may not involve touch at all (e.g. exposure to pornography, exhibitionism) (Sanderson 2004)  
  **Identified problem:** some CSA prevention programmes do not teach that sexual abuse may involve a familiar adult (family) and older children (Kaufman and Zigler 1992; Sanderson 2004)                                                                                                                                                                                                 |
| (2) Grooming                  | Distinguishes between early grooming behaviours, including ways of establishing emotional ties and developing relationship, and later perpetrator behaviours including tricks and bribes (gifts and rides), and threats and blackmail  
  • Children are aware of some techniques offenders may use  
  **Identified problem:** sexual abuse more frequently involves a grooming process, taking place over a prolonged period (Smallbone and Wortley, 2001). Programmes typically do not teach children the skills to resist grooming (Sanderson 2004)  
  **Identified problem:** seeing abuse as a sudden attack by a perpetrator. Some CSA prevention programmes present abusive situations as involving a sudden attack by a perpetrator (Bagley, Thurston, and Tutty 1996; Conte, Wolfe, and Smith 1989; Sanderson 2004). They either fail to deal with the issue of abuse by a familiar adult or overemphasise the risk posed by strangers (Kaufman and Zigler 1992). Molestation by strangers is relatively infrequent, with strangers believed to be responsible for only 10–20% of reported child sexual assaults (McCurdy and Daro, 1994) |
(3) Secrets

Considers good and bad secrets
- Children know that bad secrets need not be kept

 Identified problem: boys in particular have been found to attribute abuse as their fault and are reluctant to report (Briggs 2005). Additionally, boys have a tendency to keep abuse secret whether asked to do so or not and these issues are not traditionally addressed in CSA programmes (Briggs and McVeity 2000).

(4) Feelings (do not teach children to use feelings as indicators of CSA)

Not to rely on good or bad feelings
- Children know what sexual abuse is and do not rely on feelings to determine whether something is right or wrong

 Identified problem: often CSA programmes teach children to trust their feelings as indication that something is not right. These feelings can include butterflies in the stomach and sweaty palms. However, many CSA prevention programmes do not acknowledge ‘bad’ touch may actually feel good (Whetsell-Mitchell 1995). Failure to acknowledge the possibility of pleasurable responses may increase victims’ guilt and shame about their experiences, thereby encouraging children to feel responsible for their abuse (Sanderson 2004).

(5) Strategies and skills

Develops self-protective strategies and skills
- Children develop a support network of trusted adults
- Children ask trusted adults to be part of their support network
- Children and adults have opportunities to build their rapport through communicating
- Children have a healthy self-concept
- Children understand safe body rules
- Confident could stop and report unsafe behaviour
- Aware can reject inappropriate and unwanted touching
- Children know what to do if they experience sexual abuse
- Children appreciate individuality and differences, and respect of self and others

 Identified problem: an understanding of inappropriate use of adult authority. Some CSA prevention programmes do not explain the appropriate use of adult authority. Perpetrators often use their authority to sexually exploit children (Bogat and McGrath 1993) because children find it difficult to resist the authority of an adult (Pelcovitz et al. 1992).
Table 2. Continued.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Key messages</th>
</tr>
</thead>
</table>
| (6) Disclosure | Supports, promotes and practices disclosure  
◆ Children know how to select their support network of trusted adults  
◆ Children know to keep telling their support network of trusted adults until something is done  
◆ Children practice skills training to enhance confidence and knowledge of ways to disclose  
◆ Children have confidence in trusted adults to help  
◆ Children recognise that teachers can help children to stay safe  
Identified problem: an important step in any CSA programme is facilitating safe disclosure. Children need to be able to identify responsible/safe adults in order for safe and effective disclosure to occur (MacIntyre and Carr 1999). Disclosures are often fraught with difficulties especially for disabled children and many programmes do not specifically address the disclosure process (Briggs and McVeity 2000) |
| 7. No fault  | Emphasise that abuse is not acceptable and never the fault of the child  
◆ Children know that sexual abuse is illegal and never their fault  
◆ Children understand, value and act according to their self-worth  
Identified problem: long-term psychological harm of CSA includes post-traumatic stress disorder, guilt and self-blame (Gaskill and Perry 2011). Boys especially are often made to feel that abuse was their fault (Briggs 2005). To address guilt and self-blame prevention programmes should include additional material designed to improve children’s self-esteem as children with low self-esteem are more likely to suffer sexual victimisation and believe it is their fault (Daro and Salmon-Cox 1994; Krivacska 1990; Sanderson 2004) |
students engage with and return to the game to play again. In educational games, learning can be improved and retention of knowledge enhanced through repeat presentation of the content. However, players are only going to play again if the game has a ‘hook’ (replayability) (Lazurus 2012). Csikszentmihalyi (1998) articulates how a hook is needed to grab the player, keep them playing and have them asking for more. The Feeling Safe conceptual phase delivered design considerations for the development of an online CSA prevention resource. These considerations are detailed in Table 3.

Computer game CSA prevention is best supported in combination with activities beyond the computer game to supplement the learning from the computer game, to further promote the messages and relate the game-play back to real-life contexts. These additional activities should be under the guidance of a teacher or caregiver. In this way game-play is extended through additional activities into real life (Klopfer, Osterwil, and Salen 2009). An extended culture around the computer game can be purposefully constructed and then users are encouraged to contribute to this culture. This can include companion websites and fan sites to the game, and player as producer by providing the ability to create artefacts around the game and share them with others via a moderated website. This can also include giving access to images within the game for use in other mediums (e.g. creating game-related posters, t-shirts, etc.), adding machinima tools to the game that allows children to easily make videos from game footage. Teacher lesson plans and guidelines for teachers, parents and trusted adults will also help students relate the game-play to real-life learnings and reinforce game messages.

Discussion/conclusion
Findings presented in this paper suggest that further investigation is warranted concerning the role of serious games for learning CSA prevention skills and strategies. It is important to note that while mobilising gaming for learning and well-being is in its infancy, new media have important implications for how young people engage in activities that they see as serious or productive work (Ito and Bittanti 2009). Significantly, today’s children learn through play, and the skills they develop will apply to more serious tasks later in life (Jenkins et al. 2006). It is argued that these new participatory cultures, including gaming, represent ideal learning environments (Gee 2003; Ito et al. 2009; Jenkins et al. 2006).

Our research suggests a well-designed prevention programme can be effective in developing sexual abuse prevention skills (Kenny 2009; MacIntyre and Carr 2000; Sanderson 2004; Wurtele 2002; Wurtele and Owens 1997) and attributes of serious games can overcome many of the challenges identified in facilitating effective CSA prevention. Best practice and effective prevention includes the development of core key messages and a games-based approach to provide consistent dissemination within diverse contexts. Furthermore, working within a gaming paradigm allows child safety prevention programmes to include active participation, specific skills training, multiple programme components (including parental involvement and support from other trusted adults), individualised instruction, lower teacher to child ratios and a comprehensive implementation embedded within the school curriculum throughout the year (Davis and Gidycz 2000). Evidence indicates the interdependence of gameplay and content in the development of games for CSA prevention. Building a game for learning child safety and well-being requires a series of protocols and processes to provide a comprehensive framework to guide development. In this paper, we have presented an overview of evidence-based qualities of child safety prevention programmes
Table 3. Key considerations for games-based approach to CSA prevention.

<table>
<thead>
<tr>
<th>Key consideration</th>
<th>How addressed in Orbit</th>
</tr>
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</table>
| 1. Not causing harm to the player group. CSA is a confronting and troubling issue even for adults. It is a significant challenge to make an effective game that addresses these sensitive issues while not causing psychological harm to the children who play the game | • Introducing a level of abstraction with real-world debrief. Orbit is a game about a child alien spaceship that has been sexually abused by one of his/her crew. The game’s website provides lesson plans to help the teacher unpack the game with students  
  • Evaluating a small-scale trial of the game with schools prior to wider release. The game will undergo a rigorous evaluation before being released more widely |
| 2. Making a game that teachers want to use. Teachers need to feel comfortable with game content, their ability to integrate the game into their classroom, the game’s ability to engage their students and how the game fits their learning needs | Providing training information for teachers. The Orbit website provides information for teachers outlining the learning that takes place in each element of the game and how to respond to disclosures of sexual abuse  
  • Providing lesson plans. Easy to follow lesson plans and accompanying classroom activities are provided. The online game and classroom activities are linked to national curriculum goals  
  • Providing teacher login. Teacher online accounts allow the teacher to manage and monitor game progress of their class  
  • Providing teacher player login. Teachers have their own player login and are encouraged to play the game prior to their students playing it and with their class |
| 3. Minimising didactic game play that fosters a rote learning model. Many learning games rely on rote learning. Rote learning cannot provide adequate training for children to understand the emotional challenges around sexual abuse and disclosure. In addition, games which mainly focus on rote learning often fail to engage the imagination of children | • Using an adventure game model. Orbit is a playable story where the player is able to actively interact with the story  
  • Create game to be online, social and can be played together in same room  
  • Using mini-games. Orbit features four mini-games. Each of these mini-games has a connection to the story and the game mechanic is the key learning  
  • Continuous forms of positive reinforcements (verbal encouragement) and implied (sound effects providing audio positive feedback to actions)  
  • Level ups are available when a character gains enough points to add of accessories, clothes, etc. on completion of levels for their avatar and environment. Offer rewards and awards |
Making meaningful design choices. Games are composed of a number of mechanics, dynamics and aesthetic components including story, animation, visuals, audio and interaction. These components are used by game creators to develop powerful learning experiences and powerful game experiences.

- Matching the game’s story to the intended learning goals. The story in Orbit is an example of how perpetrators use grooming techniques to sexually abuse children and how it is an adult’s responsibility to protect children.
- Story and game-play must be linked. Either they are intertwined in the environment so that the story is in the gameplay or so that there are stories and related mini-games.
- Most games are situated in the present. Recommendation is to set game in the now, e.g. ‘what should they do?’ so players’ response affects the story immediately, rather than past tense – ‘what should they have done?’
- The game should include human or human-like characters (e.g. aliens). Children will relate more to human characters and stories.
- Designing each mini-game to support the learning goals. Within Orbit, the robot factory mini-game teaches children about public and private body parts; the Need to Tell Machine mini-game teaches children about offender tactics and discerning between situations that need to be told to a trusted adult and those that do not; and the Speak Up mini-game teaches children about the barriers that exist to telling their trusted adults about abusive situations, and how these barriers can be overcome.
- Using ancillary sections of the game to model appropriate behaviours. The Need to Tell Machine features a guitar-hero style mini-game that visually shows messages flagged as ‘need to tell’ being given to trusted adults so that they can help the child deal with these ‘need to tell’ situations. The Speak Up mini-game is designed for side-by-side play so that a child and their trusted adults can play it together. The puzzles are solved through discussions and planning between the two players. The adult characters in the game have special abilities which are evoked to help solve each level. These include togetherness, listening, understanding, believing and courage.
- Use of music and sound effects should be considered for this game. Selected for the age of players and includes the types of sound effects, and the genre and style of the game.

Inclusivity. Many CSA programmes do not adequately meet the needs of boys and games are generally thought to be of more interest to boys. In addition, there can be accessibility issues for children with disabilities or learning difficulties.

- Equal access for all, engagement for all races and cultures, either explicit setting of stories to cover all possible races/cultures or generic stories which are relevant to multiple races and cultures, or create amorphous characters without race/culture, or allow players to create their characters which will represent their race/culture.
- Gender inclusivity. The child can select a female or male avatar and can customise the avatar at the start of the game. The gender of the ship character is then matched to that of the child. The situations and scenarios experienced by the ship are thus relevant to the gender of the player.

(Continued)
Table 3. Continued.

<table>
<thead>
<tr>
<th>Key consideration</th>
<th>How addressed in Orbit</th>
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<tbody>
<tr>
<td>• Social elements of game-play for girls should be provided. The game should have equal representation of gender and portray girls as equal, strong, heroes and in action roles</td>
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<tr>
<td>• Activities, puzzles, game-play should be equally appealing to both genders</td>
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<tr>
<td>• Important to have gender-specific content and mini-games, such as board-game genres for female gamers, and first person shooter/roll playing games/sports for male games</td>
<td></td>
</tr>
<tr>
<td>• Avatar generator inclusivity. The child and trusted adult avatars are customisable with skin colour, eye colour and facial features represented of people from all around the world. The avatar generator also has a wheelchair option</td>
<td></td>
</tr>
<tr>
<td>• A customisable online environment can help children construct their identity. The game should allow children to personalise and customise their avatar and their home environment. As they achieve more within the game, they unlock access to additional features</td>
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</tr>
<tr>
<td>• Voicing of text. All conversations, instructions and information in the game is displayed as text on screen and voiced by voice actors</td>
<td></td>
</tr>
<tr>
<td>• Free and downloadable. The game is available free of charge from the game’s website. It is playable either directly from the website or as a local download</td>
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<tr>
<td>• The player must want to interact with both story and games</td>
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<tr>
<td>• Support materials have been provided for parents on the game’s website</td>
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</tr>
<tr>
<td>• Need to support parents and other trusted adults to play the game with children as a way of spending time with children and encouraging parent/trusted adult and child discussions about the game and content</td>
<td></td>
</tr>
<tr>
<td>• The site will provide education material specifically for parents and other trusted adults to convey details about sexual abuse. It will also encourage discussion of these issues with the children. Modelling comfort when discussing sexual abuse is likely to support disclosures</td>
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</tr>
<tr>
<td>• Parents can log into the game to learn more about CSA and to track their child’s progress and learning</td>
<td></td>
</tr>
<tr>
<td>• Game puzzle/strategy-based adventure games designed with social (family/compilation) elements</td>
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</table>

6  Parental support

• A variety of offenders. The offender in the Orbit game story is known and familiar to the ship character. As the game unfolds the player learns about the grooming techniques the offender used on the ship. Within the mini-games a variety of offenders are presented including women, older people, younger people, family, non-family, familiar adults and strangers

• Need to show that all types of people are perpetrators and extend the stranger danger concept. The child should want to imitate appropriate behaviour in protection situations (e.g. prevention of abuse, escape situations, seeking help, disclosures, etc.). Therefore, child should relate to the onscreen characters
8 Attracting the child and the teacher to the game

- Attracting the player to play the game. To be attractive to children, the game information should include in-game shots, game features (players, credits, number of games), game-play (what you can do), genre, characters (introduce attractive characters that child wants to play), narrative (introduce story – why play game), cinematic shots (show the environment that the child will play in)

9 Encourage involvement by trusted adults

- Side-by-side play. One of the mini-games is designed for side-by-side play and a second has a side-by-side play option. These mini-games are more easily completed through communication and discussion between the two players, and children are encouraged to play alongside their trusted adults
- Log-in to the website. Trusted adults have a dedicated area in the Orbit game to which they can log in, track their child’s progress, understand what the child is learning, leave a message on the child’s ‘I am good at’ board and learn about responding to a disclosure

10 Role play. Research shows that most learning gains are made by CSA prevention programmes when children participate in role-play scenarios

- Scenarios feature in Orbit story and mini-games. Realistic and relevant CSA scenarios are presented in the mini-games and main story. The scenarios are based on reports from the QPS and counsellors
- Role-play opportunities provided in lesson plans. Further opportunities to explore the scenarios via role play are suggested in the lesson plans given to teachers

11 Making it positive. Meaningful learning around sexual abuse prevention and disclosure are presented alongside positive learning experiences to grow confidence and self-esteem

- I am good at boards. The game has an ‘I am good at’ board where the player can choose statements of things that they are good at and these will display in one of the rooms on the spaceship. In addition, children from the child’s class and the child’s trusted adults can log in and add more items to their ‘I am good at’ board
- Game achievements. The child has customisable spaces on the spaceship. As the player progresses through the game, they unlock rewards including furniture and toys that can be used to decorate their spaces on the ship. Players can also visit online other children in their class to see how they have decorated their rooms and leave positive messages
- Building a trusted adult network. A key focus of the Orbit game is building a network of trusted adults to support the child. In each chapter the player ‘beams’ aboard the online spaceship a trusted adult. These trusted adults assist the child as they play the game. The child is guided by their choice of trusted adult and which represents trusted adults from their real life
- Consider the game play, e.g. overcome evil, earn points, win battles (competitions with other children, time trials, credits, top earners), win race (race against non-player characters or other players), top scoreboard (schools, child), solve puzzles, simulations, build empire (own environment, home, room, clothes/accessories, friends, personal page, blog, etc.)
and key CSA prevention messages. We have shown how a games-based approach to learning prevention skills can provide a relevant and supportive mode of delivery within contemporary twenty-first-century educational learning contexts. Key to the productive development of this resource is the collaboration of interdisciplinary expertise that includes game designers, content experts (health promotion, social workers and psychologists) and educators. The paper has demonstrated that building a CSA resource is complex and involves developing a game that reflects elements of effective prevention programmes, maps key CSA messages within the game framework and utilises current understanding of games-based approaches to pedagogy for engagement and learning. The paper reports on the design and development of the Feeling Safe project and the Orbit online CSA prevention and disclosure game. Further research is required to explore complexities in designing serious games including a comprehensive evaluation of the impact of the Orbit game to CSA prevention.

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Colleen Stieler-Hunt is a PhD student at the University of the Sunshine Coast who is investigating how teachers use digital games in the classroom. She was also involved in the development of Orbit – a child sexual abuse prevention program.

Ben Rolfe is a serious game researcher, developer, teacher and player. He is in the final stages of a Doctorate of Creative Arts at the University of the Sunshine Coast, Australia, where he focuses on developing games and other playful systems that address complex environmental and social issues.

References


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Published 2015 in Frontiers in Psychology, 5(73). doi: http://dx.doi.org/10.3389/fpsyg.2014.00073

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Examining key design decisions involved in developing a serious game for child sexual abuse prevention

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INTRODUCTION
This paper presents key decisions in the development of a Serious Game for child sexual abuse prevention. Serious Games is an umbrella term used to encompass digital games designed for a purpose beyond entertainment. Serious Game designers aim to use qualities of digital game-play such as immersion, interaction, and engagement, to change people’s thoughts or behaviors or help them learn something. Within the Serious Games field, there are a large number of overlapping game sub-groupings that have emerged organically over time (Sawyer and Smith, 2008). Those most relevant to this paper are Games for Health (“Games for Health,” 2013), Games for (social) Change (“Games for Change,” 2005) and learning games. Aside to the Serious Games movement, there is also a movement around games-based learning which involves using games, either entertainment games or Serious Games, to aid the learning process in formal learning environments such as schools and universities.

Proponents of using digital games as part of the learning process believe that games provide opportunities to “learn through doing” and in doing so promote understanding, motivation, and enjoyment (Kirkriemuir and McFarlane, 2004; Gee, 2008; Klopfner et al., 2009; Shute et al., 2010). They also provide significant opportunities for social interaction between student players and between the student players and the teacher (Gee, 2003, 2008). In addition, games also provide immediate feedback, allow players to achieve at their own level in their own way and give players a sense of agency over the game environment (Salen and Zimmerman, 2004; Gee, 2008; Shute et al., 2010). However, teachers report difficulty in finding games of a high enough quality that meet both curriculum needs and players’ expectations (Kirkriemuir and McFarlane, 2004; Egenfeldt-Nielsen, 2005). Therefore, there is a need to produce high quality games that address curricula in meaningful ways.

This paper presents a case study of the key decisions made in the design of Orbit, a child sexual abuse prevention computer game targeted at school students between 8 and 10 years of age. Key decisions include providing supported delivery for the target age group, featuring adults in the program, not over-sanitizing game content, having a focus on building healthy self-concept of players, making the game engaging and relatable for all players and evaluating the program. This case study has implications for the design of Serious Games more generally, including that research should underpin game design decisions, game designers should consider ways of bridging the game to real life, the learning that arises from the game should go beyond rote-learning, designers should consider how the player can make the game-world their own and comprehensive evaluations of Serious Games should be undertaken.

Keywords: video games, serious games, serious game design, child protection, sexual abuse, personal safety program

The curriculum in this case study is child sexual abuse. Child sexual abuse is a significant societal problem. Whilst its prevalence is not known because a significant amount of abuse goes unreported, it is estimated that from 7 to 62 percent of women and from 3 to 19 percent of men have experienced some form of child sexual abuse on at least one occasion (Sanderson, 2004). People experiencing sexual abuse as children can experience negative impacts for the entirety of their lives (Lamont, 2011; Queensland Government, 2011). Individuals who have been sexually abused as children have a higher risk of psychological problems, suicide, drug and alcohol misuse, engaging in high-risk sexual behavior, homelessness, eating disorders and obesity, physical health problems and displaying aggressive, violent and criminal behavior (Mullen and Fleming, 1998; Access Economics, 2008; Lamont, 2011; Queensland Government, 2011). Access Economics estimates the annual cost for child abuse and neglect costs Australian society four billion dollars each year (Access Economics, 2008). Recovery from child sexual abuse is best facilitated by a supportive network of significant others (Mullen and Fleming, 1998). Children who are able to share information with a trusted adult, and who are believed, experience less impact than children who do not disclose the abuse. Therefore, the need exists to produce programs that effectively educate children and adults about sexual abuse and its prevention.

Evaluations of child sexual abuse prevention programs and serious games are limited. Only 2.6 percent of Australian child sexual abuse prevention programs are comprehensively evaluated (Sanderson, 2004), and until recently few serious games are rigorously evaluated (for example, Beale et al., 2006, 2007; Nudell et al., 2007; Kato et al., 2008; Kognito Interactive, 2009; Froshauer et al., 2010; Knight et al., 2010; Shute et al., 2010; Wrzesien and Alcañiz Raya, 2010; Muratet et al., 2011; Alamri et al., 2014). However, evaluating Serious Games is an emerging
research area with a number of researchers working toward evaluation frameworks for evaluating aspects of Serious Games (for example, Ekanayake et al., 2010; Nacke et al., 2010) or Serious Games as a whole (for example, de Freitas and Oliver, 2006; De Freitas et al., 2010; Mayer et al., 2013). This paper intends to support rigorous evaluation through presenting key decisions in the evaluation of the child sexual abuse prevention serious game.

Part of our rationale for using a computer game to help children learn about child sexual abuse prevention is that computer games are the medium of this generation and most Australian children in our target age group play games (Brand et al., 2008).

Another reason for creating a game around this subject matter is that although teachers recognize the importance of child sexual abuse prevention, generally they do not feel confident with the subject matter (Scholes et al., 2012). It is intended that teachers can use this game as a basis for addressing this sensitive issue.

Furthermore, good games will engage the player and provide them with emotional experiences in a low risk environment through the narrative presented in the game and interaction with the game-world, game characters, and immersion in the audio-visual environment.

This paper presents a case study of the key decisions made in the design of Orbit, a child sexual abuse prevention computer game targeted at school students between 8 and 10 years of age. In Section Materials and Methods, we give an overview of the materials and methods used in this study. Section Results identifies the evidence underpinning the key design decisions. Finally, we discuss the implications this case study has for the design of Serious Games more generally.

MATERIALS AND METHODS

Multidisciplinary research teams were established to compile reports and develop recommendations for (1) key messages for an effective sexual abuse prevention program, (2) effectively training teachers in sexual abuse prevention, (3) program delivery, support and data around incidence of reporting disclosure, (4) computer games and their use in education and (5) learning styles of boys and girls in our target age group. These reports were critiqued by an external reviewer who is an expert in child sexual abuse prevention as well as psychologists, counselors, and social workers.

These working group reports were used to develop a “theory of change” as suggested by Swain (2007). A “theory of change” articulates the holistic process of how the program aims to bring about change in its participants. This “theory of change” was further elaborated into a series of 54 individual learning objectives for children participating in the program and 80 individual learning objectives for adults involved in the program.

Subject matter experts in a range of fields including counselor practitioners working with children who have been sexually abused, Queensland Police Service and psychologists regularly consulted on the game’s design. Focus groups and play-test sessions were also held with school children in our target age group throughout the design process.

In the early phases of designing the game, we used many different ideation techniques, including trying to find the “play space” in the topic as outlined by Klopf et al. (2009), using the game-like stimulus-based ideation techniques developed by Paavilainen et al. (2009), thinking about our end users in terms of their play personalities (Brown, 2009), beginning each ideation session with a problem statement (Schell, 2008) and thinking of our game space as a system (Brathwaite and Schreiber, 2009; Klopf et al., 2009). Taking more than a year of weekly meetings to come up with the ideas and develop them, we endeavored to use all elements of the game as meaningfully as possible to assist with the learning process.

The game that was developed is titled Orbit. Orbit is an adventure game with an interactive story line and a series of integrated mini-games. The story centers on Sammy, a spaceship who has become emotionally distant from its concerned crew. The crew consists of six aliens: Epsilon the navigator, Delta the scientist, Zeta the janitor, Tau the robotics’ expert, Rho the security officer, and Chi the chef. The game begins with an earth child (the player character) beaming aboard the spaceship. The player is tasked with doing all he/she can to help Sammy. Gradually, Sammy learns what to do to start the recovery process.

The game has five chapters entitled: (1) togetherness, (2) listening, (3) understanding, (4) belief, and (5) courage. Integrated within these chapters are four mini-games: Robot Factory, “Need to Tell” machine, Speak Up, and Surveillance Footage.

The majority of the game-play was designed by three game designers/researchers. The list of key design decisions was compiled by one of the game’s designers and after interviewing the other two game designers.

RESULTS

Any creative project is the result of many decisions made during the design and development process. This results section describes some of the key game design decisions and justifies them with research evidence. These key decisions have been grouped into seven sections: Key decision 1: delivery of program to be supported by classroom activities, Key decision 2: longer duration program, Key decision 3: feature adults in the program, Key decision 4: not over-sanitizing content, Key decision 5: focusing on building healthy self-concept, Key decision 6: making the game engaging and relatable for all players, and Key decision 7: evaluate the program. These results are summarized in Table 1.

KEY DECISION 1: DELIVERY OF PROGRAM TO BE SUPPORTED BY CLASSROOM ACTIVITIES

Sanderson’s (2004) comprehensive research into the effectiveness of child-focused sexual abuse prevention programs found programs integrated into the school curriculum tended to be more effective. Furthermore, Rispens et al. (1997) suggests classroom activities allow for more discussion and reflection on program content. Other research findings indicate that older children retain child sexual abuse concepts better than children in preschool or early primary school (Finkellor et al., 1995; Sanderson, 2004). Therefore, the Orbit program was developed to be integrated into the year 4 (children between 8 and 10 years of age) curriculum of Australian schools. The program consists of a computer game designed to be played individually by each child.
Table 1 | Key design decisions and their justification.

<table>
<thead>
<tr>
<th>Key decision</th>
<th>Justifications</th>
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| **Key decision 1.** Delivery of program to be supported by classroom activities. | - More effective child sexual abuse prevention programs are integrated into the school curriculum (Sanderson, 2004).  
- Classroom activities provide more opportunities for discussion and reflection (Rispens et al., 1997). |
| **Key decision 2.** Longer duration program—design the Orbit program so that it takes place over several weeks. | - Longer child sexual abuse prevention programs are more effective than one-off presentations (Hazzard et al., 1991; Finkelhor et al., 1995; Rispens et al., 1997; Sanderson, 2004). |
| **Key decision 3.** Feature adults in the Orbit program by providing: a) support and educative information for families, teachers, and community members. b) opportunities for adults to get involved in the program through special trusted adult logins and opportunities for side-by-side game-play with trusted adults. c) virtual representations of the players’ trusted adults within the game through the use of avatar generators. The game requires the player to create virtual representations of five trusted adults from at least three different parts of their life. d) opportunities for players to reflect on the suitability of the adults in their support network through the game’s narrative, game dialog boxes, and an in-game utility to facilitate further reflection. | - Many child sexual abuse prevention programs put too much responsibility on children to protect themselves (Sanderson, 2004; Wurtele, 2009; Scholes et al., 2012).  
- Most effective programs include parental involvement (Briggs and Hawkins, 1994; Wurtele, 2002; Sanderson, 2004) and community integration (Berrick and Barth, 1992; Wurtele, 2002).  
- Although a significant societal problem, child sexual abuse is not well understood by many adults (Putnam, 2003; Tucci et al., 2006) and some common practices and stereotypes can assist perpetrators of child sexual abuse (Somer and Szwarcberg, 2001; Johnson, 2004; Sanderson, 2004).  
- Identifying five adults a child can reliably turn to when requiring assistance is a recognized protective behavior for children (Wurtele, 2002; Queensland Government, 2012; Scholes et al., 2012).  
- Subject matter experts consulting on the project felt it was important that children themselves were able to select and change their five trusted adults in their support network, they also felt that these adults should be from a variety of areas in the child’s life and that the child should be encouraged to reflect on the suitability of adults in their trusted adult support network. |
| **Key decision 4.** Not oversanitizing content by: a) using a rules-based understanding of sexual abuse. b) helping players understand perpetrator tactics c) helping players understand the barriers to telling. d) featuring the perpetrator as a main character in the game. | - In an effort to avoid controversy and fear and anxiety in children, some child sexual abuse prevention programs oversanitize content, so much so that they are ineffective (Finkelhor and Strapko, 1992; Sanderson, 2004; Tucci et al., 2006).  
- Recognizing sexual abuse is a key part of many prevention programs (Wurtele, 2002). Some programs suggest children use feelings to ascertain whether a situation is okay (Wurtele, 2002) but this approach fails to recognize grooming/normalizing behaviors that may accompany sexual abuse and that sexual touching may feel good (Sanderson, 2004). Developing a rules-based understanding of sexual abuse helps to combat these issues.  
- The scenarios used within the mini-games were based on reports of child sexual abuse collated by police and counselors. These scenarios served to help children understand the tactics that perpetrators use to abuse children and acknowledge the emotional and psychological barriers that often prevent children from telling adults about abuse (Sommer and Szwarzberg, 2001; Putnam, 2003).  
- Perpetrators of child sexual abuse are likely to use careful grooming strategies that instill trust and use their authority to abuse a child rather than perpetrate a sudden attack on a child (Smalkine and Wortley, 2001; Wurtele, 2002; Sanderson, 2004; Scholes et al., 2012) therefore the person who plays the abuser in the game’s main storyline is liked and valued by the other characters in the game. |
| **Key decision 5.** Focus on building healthy self-concept. | - Children who have a healthy self-concept are more likely to retain information presented in child sexual abuse prevention programs and are more likely to resist a perpetrator (Sanderson, 2004).  
- Perpetrators report that they select victims who are “passive, troubled, lonely” children and use these characteristics to prevent them from telling an adult about the abuse (Budin and Johnson, 1989). |

(Continued)
Table 1 | Continued

<table>
<thead>
<tr>
<th>Key design decisions</th>
<th>Justifications</th>
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<tr>
<td><strong>Key decision 6. Engaging and relatable for all players.</strong></td>
<td>• Many child sexual abuse prevention programs have been criticized for not catering well for boys (Asdigian and Finkelhor, 1995; Finkelhor and Dziuba-Leatherman, 1995; Sanderson, 2004; Scholes et al., 2012) whilst many mainstream games are criticized for alienating women and girls (Dietz, 1998). Also important is that the program consider children with disabilities (Briggs and McVeity, 2003; Sanderson, 2004) and children that have experienced or are experiencing abuse (Currier and Wurtele, 1996; Scholes et al., 2012). • The game was set in a fantastical game environment with the ability to customize player game characters, earn rewards and personalize parts of the game environment (Malone, 1980; Hedden, 1998; Poremba, 2003; Dondlinger, 2007; Gibson et al., 2007).</td>
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<tr>
<td><strong>Key decision 7. Evaluate the program.</strong></td>
<td>• Many child sexual abuse prevention programs are criticized for not being evaluated rigorously (Melton and Flood, 1994; Sanderson, 2004). • This program will be evaluated using pre- and post- tests and a control group (Sanderson, 2004) using variations to What-If Situation Test (Wurtele et al., 1998) and the Children’s Knowledge of Abuse Questionnaire (Tutty, 1995).</td>
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in the class and a set of lesson plans to be used by the teacher to clarify and extend game concepts.

**KEY DECISION 2: LONGER-DURATION PROGRAM**

Child-focussed sexual abuse prevention programs range from one-off presentations to longer-duration programs (Sanderson, 2004), with longer programs proven to be more effective (Hazzard et al., 1991; Finkelhor et al., 1995; Rispens et al., 1997; Sanderson, 2004). Therefore, the Orbit program was developed so that the player could progressively develop key learnings and skills. The game provides about 6 h of game-play and is designed to be integrated into classroom activities over a period of 5–12 weeks. The game saves player progress as the player plays through the interactive story.

**KEY DECISION 3: FEATURE ADULTS IN THE PROGRAM**

A criticism of many child sexual abuse prevention programs is that they put too much onus on children to be responsible for their own safety; when it is the responsibility of adults to protect children (Sanderson, 2004; Wurtele, 2009; Scholes et al., 2012). Therefore, researchers recommend that the most effective programs will include parental involvement (Briggs and Hawkins, 1994; Wurtele, 2002; Sanderson, 2004) and community integration (Berrick and Barth, 1992; Wurtele, 2002). The Orbit program includes adults by (a) providing support and educative information for families and community members, (b) having ways that adults can get involved in the program, including playing the game alongside the child, (c) including virtual representations of adults in the players’ game-play and (d) encouraging students to reflect on the suitability of the adults in their support network.

(a) Providing support and educative information for families, teachers, and community members

Recognition of child sexual abuse as a significant societal problem is relatively recent, with its prevalence only beginning to be realized as recently as the late 1970s (Putnam, 2003). Therefore, child sexual abuse is not well understood by many adults (Tucci et al., 2006) and some common societal practices such as children being expected to obey adult authority (Somer and Szwarckopf, 2001), stereotypes of perpetrators as scary strangers that attack a child suddenly (Sanderson, 2004) and the culture of secrecy around child sexual abuse (Johnson, 2004) can assist perpetrators of child sexual abuse. In addition, many adults do not know how to respond to a disclosure of child sexual abuse (Tucci et al., 2006) and teachers report feeling concerned about teaching child sexual abuse prevention programs (Scholes et al., 2012). Therefore, the Orbit website (www.orbit.org.au) includes information for adults on how to respond to disclosures of sexual abuse, general information about child sexual abuse, information about the game and key learnings and ideas for discussing these further with children. The website also contains specific information for teachers about how to use the game in the classroom and provides lesson plans that can be used.

(b) Providing opportunities for adults to get involved in the program

Orbit allows trusted adults to be directly involved in the program. An adult login code is generated each time the player character generates a new trusted adult. The player gives this code to their trusted adults along with an information slip. The slips explain what the game is, how to access the trusted adult section of the website and how to respond if a child discloses abuse to them. The trusted adult can use the code to log in to the Orbit website to find out more about what the player is learning in the game and leave positive messages for the player. The game further encourages positive interaction between the player character and their trusted adults by providing two mini-games that trusted adults can play side-by-side (two people at one computer) with the child player.

(c) Providing virtual representations of the players’ trusted adults within the game

Proactively identifying five adults whom a child can reliably turn to when they need assistance is a recognized protective
behavior for children (Wurtele, 2002; Queensland Government, 2012; Scholes et al., 2012). In addition, our subject matter experts recommended that these five adults come from a variety of areas of the child’s life (e.g., family, school, sport, club) so that the child will be more likely to feel they have an adult they can turn to, no matter where they are and that the child is not selecting adults only from the environment where abuse may be occurring. Therefore, the Orbit game scaffolds the construction of the player’s personal support network of five trusted adults. During each of the game’s five chapters, a crew member asks the player character to teleport aboard the spaceship an adult from their life. In chapters one and two the player character is asked to teleport aboard an adult from their family and school, respectively. In chapter three the player character is asked to teleport aboard an adult from somewhere other than their family and school (e.g., sporting team, church, children’s club) and in Chapters 4 and 5, the player character is asked to teleport aboard an adult from any of the aforementioned categories. The player uses an avatar generator to create a visual representation of each trusted adult character.

(d) Providing opportunities for players to reflect on the suitability of the adults in their support network

Our subject matter experts recommended that children reflect on the qualities of the relationship they have with their trusted adults and know that the choice of these trusted adults is in their control and that they can change their trusted adults at any time. To this end, we (1) constructed the game’s narrative around trusted adults, (2) added “security warnings” to the in-game teleportation devices to say “Only beam aboard trusted adults who do not break the body rules” and (3) developed an in-game utility that the player could use to personally reflect on the qualities of the relationship they have with each of their trusted adults.

The game’s narrative was themed around the key qualities that trusted adults should have. Each game chapter was named after one of these key qualities— “Chapter 1: Togetherness,” “Chapter 2: Listening,” “Chapter 3: Understanding,” “Chapter 4: Belief,” and “Chapter 5: Courage.” Once the trusted adult character is teleported aboard the spaceship, each trusted adult character helps the player character complete a chapter of the game. As the player constructs their support network by one trusted adult per chapter, Sammy, the child spaceship also rebuilds its support network of trusted adults, one crew member at a time. In chapter 1 Sammy learns that Delta, the spaceship’s scientist, will always be there for Sammy, in chapter 2 Sammy learns that Zeta, the spaceship’s janitor, will always listen to Sammy, in chapter 3 Sammy learns that Tau, the spaceship’s robotics’ expert, will always understand Sammy, in chapter 4 Sammy learns that Rho, the spaceship’s security officer, will always believe Sammy, and in chapter 5 Sammy learns that Chi, the ship’s chef, will always stand up for Sammy. These qualities are further reinforced in the Speak Up mini-game, in which the trusted adult player character has five special abilities, togetherness, listening, understanding, believing, and courage, that help the players navigate the platforms and solve the puzzle for each level.

KEY DECISION 4: DO NOT OVER-SANITIZE CONTENT

A criticism of some sexual abuse prevention programs is that they are ineffective because they sanitize the content of the program in order to avoid controversy (Sanderson, 2004). This is understandable, since learning about child sexual abuse can induce fear and anxiety in children (Finkelhor and Strapko, 1992) and child sexual abuse can be a confronting topic even for adults (Tucci et al., 2006). However, there is no point having an ineffective program and therefore we endeavored to make the Orbit program positive, practical, and effective. Therefore, the program addresses potentially sensitive concepts such as “what is child sexual abuse,” “the tactics used by perpetrators of sexual abuse” and “barriers to telling about sexual abuse.”

(a) Rules-based understanding of sexual abuse

Recognizing sexual abuse is a key part of many sexual abuse prevention programs (Wurtele, 2002). However, child sexual abuse can take many forms and in some cases the difference between what is and isn’t sexual abuse can be difficult even for adults to comprehend, so helping children recognize sexual abuse is potentially problematic due to children’s level of cognitive development, societal norms around what is appropriate for children to learn about sex and the moral imperative of wanting to protect the innocence of children and not wanting them to be unnecessarily fearful.

Some child sexual abuse prevention programs tell children to use their feelings about a situation to tell them whether what is happening is okay (Wurtele, 2002). However, this kind of approach fails to recognize grooming behaviors that may accompany sexual abuse and that sometimes sexual touching may make the child feel good (Sanderson, 2004). To this end, we adopted a rules-based approach to understanding what sexual abuse is and how to respond to it. The player is introduced to the terms “private parts” and “breaking the body rules” in the first chapter of the game. In subsequent chapters it promotes “telling” trusted adults as the best course of action if someone breaks the body rules.

The Robot Factory mini-game first introduces this rules-based understanding of child sexual abuse. In this mini-game the player assembles robots by dragging the non-private body parts (head, arms, legs, stomach) onto a blueprint of a robot but lets the private parts of the robot (mouth, chest, and area covered by the underpants) roll off a conveyor belt into a private parts section. Once the public parts of the robot have been assembled, the player places the partially-assembled robot in an assembly queue. The robot goes into a private dressing room, where it affixes its own private parts and the robot puts its “clothes” (paint) on. Therefore, the core activity of the mini-game requires the player to distinguish between the parts of the body that are private and those parts of the body that are not private.

(b) Understanding of perpetrator tactics

Children should to be aware of the tactics that perpetrators use to abuse, and they should understand that abuse is never the fault of the child. In addition children need to be able to identify the types of situations that should be communicated to their trusted adults. Some perpetrator tactics were enacted in the main storyline of the game. However, the main storyline only deals with one
case of sexual abuse, albeit in detail, so the “Need to Tell” Machine and the Speak Up mini-games are introduced in chapters three and four, respectively, to help children understand the variety of tactics that perpetrators use to abuse children. The 55 abuse scenarios in these mini-games were based on reports of child sexual abuse collated by the Queensland Police Service and the collective experiences of counselors from Sunshine Cooloola Services Against Sexual Violence Inc. who work with children who have been sexually abused.

The “Need to Tell” Machine is introduced to the player as a communication system Sammy once used to tell the spaceship crew about “need to tell” situations. Throughout this mini-game, a member of Sammy’s crew, Rho, acts as a pedagogical agent guiding the activity of the player (Moreno and Mayer, 2007). Rho asks the player character to retrain the machine so that it will work properly again. In each level of the retraining, there are two phases of game-play followed by a debrief. Using a quiz-based mechanic, the player is given a number of scenarios and is instructed to tag each scenario as either “need to tell” or “do not need to tell.” The scenarios are written as text messages, audio recordings, voice-mail messages or surveillance footage and communicated to the player using both on-screen text and voice to promote multimodal learning (Moreno and Mayer, 1999). In phase 2 of the game, the child must tell their trust adult those scenarios which they have tagged as “need to tell.” This phase of the game uses a “Guitar Hero” style music and rhythm mechanic. Each level focuses on a different offender tactic: bribes, tricks, secrets, coercion, making the child think no one will believe them, grooming, making the child think they wanted it, isolation, making the child think no one will believe them, and threats.

(c) Barriers to telling

Although it is widely acknowledged that emotional and psychological barriers prevent children from telling adults about abuse (Somer and Szwarcberg, 2001; Putnam, 2003), information about these barriers is not typically included in child sexual abuse prevention programs. These barriers include overcoming the influence of the abuser(s) and their power, pressure and control; and fears about what will happen if they tell (e.g., Will the person go to jail? Will I lose my family?). Our subject matter experts felt that these should be included as part of the program. This information was dealt with in the main storyline of the game and in the Speak Up mini-game.

Each level of the Speak Up mini-game explores a scenario where an alien child has been sexually abused. The player characters (child player character and trusted adult player character) are tasked with breaking down an “invisible” wall (barriers to telling), brick-by-brick. They do this by working together. The child player character picks up objects belonging to the alien child. These objects explain what the alien child is thinking or feeling and explain why they are not telling their trusted adults about their “need to tell” situation. Meanwhile, the trusted adult player character picks up stars. The stars provided advice on how to deal with the thoughts and feelings that the alien child is having.

(d) Representing the perpetrator

We purposefully depicted the person who sexually abused Sammy as an important part of the crew and as someone who seemed like a genuinely nice person. We avoided the stereotypical “baddy” representations often used in games because research shows that most adult perpetrators of sexual abuse will seem trustworthy to the child and their family. Furthermore, stereotypes of “evil-looking” people are unhelpful to understanding the nature of child sexual abuse because perpetrators are more likely to use careful grooming strategies that instill trust and use their authority to abuse a child rather than perpetrate a sudden attack on a child (Smallbone and Wortley, 2001; Wurtele, 2002; Sanderson, 2004; Scholes et al., 2012). We also tried to make the perpetrator look as non-descript as possible by attempting to make the character be of indeterminate age and have no distinguishing physical features. Early in development, we shared concept art of our characters with focus groups of children from our target age group and asked them to pick which character would be the “baddy.” Across six focus groups, we found that only one child suggested that the perpetrator character might have been part of a group of “baddies” in the game.

In addition, the 55 abuse scenarios used across mini-games characterized a variety of perpetrators (e.g., gender, age) and victims (e.g., gender, age), in a number of different power relationships (e.g., authority figure, family connection, stranger).

KEY DECISION 5: FOCUS ON BUILDING HEALTHY SELF-CONCEPT

Children who have a healthy self-concept are more likely to retain information presented in child sexual abuse prevention programs and are more likely to resist a perpetrator (Sanderson, 2004). In addition, perpetrators report that they select victims who are “passive, troubled, lonely” children and use these characteristics to prevent them from telling an adult about the abuse (Budin and Johnson, 1989). Therefore, the Orbit game has a number of features designed to help build and reinforce a healthy self-concept including problem solving elements, “I am good at” boards, in-game rewards which can be used to decorate their bedroom and the living room on-board the spaceship, and the game’s story models that children are important with strong statements such as, “nothing is more important than your safety,” appearing regularly in the script.

KEY DECISION 6: ENGAGING AND RELATABLE FOR ALL PLAYERS

Child sexual abuse prevention programs need to be engaging and relatable to all segments of the target audience (Scholes et al., 2012). We especially wanted to ensure that the game catered for both girls and boys—many child sexual abuse programs have been criticized for not catering well for boys (Asdigan and Finkelhor, 1995; Finkelhor and Dziuba-Leatherman, 1995; Sanderson, 2004; Scholes et al., 2012) and many mainstream games are criticized for alienating women and girls by presenting inappropriate portrayals of women (Dietz, 1998). We also considered how the program may impact children who have been or are currently being sexually abused (Currier and Wurtele, 1996; Scholes et al., 2012) and children with disabilities, who are at greater risk of being abused because they rely on adults more for their care (Briggs and McVeity, 2003; Sanderson, 2004). We did this by using a genre of game that was engaging to both boys and girls, setting the game in a fantastical environment, providing character and game-world customizations and making...
mini-game sexual abuse scenarios representative of our target audience.

We decided to use a fantastical setting for the game rather than a real-life setting as a fantastical game environment would be both appealing to players (Malone, 1980; Hedden, 1998; Gibson et al., 2007) and could also be used to effectively introduce players to these sensitive sexual abuse prevention concepts without feeling threatened by them. In addition, the distance from reality that a fantastical environment provides makes the game more appropriate for children who have been sexually abused in the past or are currently being sexually abused.

The ability to customize game characters and game environments is one way to give players agency, a sense that their decisions in the world matter (Poremba, 2003). The Orbit game offers players the ability to customize their own avatar and each of their trusted adults avatars so that they can create characters they can identify with. Character customizations included a wheelchair avatar. The player can also personalize the living space and their bedroom on the spaceship by changing color schemes and adding furniture and other objects to the room. Such objects are regularly given to the player for achieving game milestones. These are part of the rewards and goal system that serves to motivate players (Dondlinger, 2007). Another significant game customization is that, the gender of Sammy, the child spaceship character that the game's narrative centers around, is always the same gender as the player character, thus helping the player to identify a little more with Sammy and what Sammy is going through.

Across the levels of the two mini-games featuring sexual abuse scenarios, we made an effort to present both boys and girls as victims of abuse and vary the perpetrators, nature of the abusive situations and the trusted adults. Generally the perpetrator of abuse was male as this fits with statistics about the nature of child sexual abuse (Finkelhor, 1999), however, there were two scenarios where a woman was the perpetrator of abuse. We also included a scenario where the sexual abuse victim had a disability.

**KEY DECISION 7: EVALUATE THE PROGRAM**

Many child sexual abuse prevention programs are criticized for not being evaluated rigorously (Melton and Flood, 1994; Sanderson, 2004). We have designed a rigorous evaluation which will commence in late 2013 and involves pre- and post- tests and a control group (Sanderson, 2004). We will test whether this learning transfer has occurred by using slight variations to the What-If Situation Test (Wurtele et al., 1998) and the Children's Knowledge of Abuse Questionnaire (Tutty, 1995). The What-If Situation Test presents children with a number of situations and asks them to explain how the child should respond. The Children's Knowledge of Abuse Questionnaire evaluates children's learning of key concepts taught in most sexual abuse prevention programs (Tutty, 1995).

**DISCUSSION AND RECOMMENDATIONS**

In this section we reflect on the information provided in the Results section of this paper and combine it with other games literature to establish a list of five key recommendations for those wishing to create learning games.

**RESEARCH UNDERPINNING GAME DESIGN DECISIONS**

Our first recommendation is that research underpins the entire game design process. This needs to start well before design work begins on the game and continue right through to the game’s evaluation. The research should include formal sources such as evidence-based research literature and informal sources such as subject matter experts (Swain, 2007).

In the case of Orbit, prior to designing the game, multi-disciplinary teams conducted a thorough review of the relevant research literature and a consultative team of subject matter experts was established prior to designing the game. This early research underpinned the game’s learning objectives that were collaboratively developed with subject matter experts. Subject matter experts also regularly provided input into the game’s design (Zyda, 2005; Swain, 2007).

Involving subject matter experts in the design of a game is challenging for both the game designers and subject matter experts (Kelly et al., 2007), as game designers do not necessarily have a full appreciation of the subject matter and subject matter experts do not have a full appreciation of the potential of using games for learning.

**CONSIDER WAYS TO BRIDGE GAME TO REAL LIFE**

Games do not exist in a vacuum, they are a part of culture more broadly (Salen and Zimmerman, 2004). Whilst with many games, the game permeates culture organically when game fans create and participate in discussion groups, fan sites, fan fiction, and other creative works such as Machinima (films created from game footage) (Berkeley, 2006), increasingly, entertainment game makers are purposefully providing tools to create original works like this to build community around a game (Thomas, 2004).

Many health games want to help people achieve long term behavioral change. Support from others can be a useful way of achieving these behavioral goals. Therefore, games with behavioral change objectives should consider how they can involve significant people from the player’s life in the game. Our game used a combination of modeling behaviors, bringing the people into the game as a game character using an avatar generator, providing opportunities for side-by-side play with trusted adults and providing discussion prompts for parents via the game website and the trusted adult cards. Getting other people to play the game and possibly interact through the game also makes the game a shared experience that fellow players can discuss with each other either face-to-face or via social media or using other communication mediums.

There are other ways to bridge game play to the player’s real life. Increasingly, developers of entertainment games are considering how teachers can use their games in the classroom. For example, in 2013 the makers of Sim City, announced that they were providing a website for teachers to share lesson plans based on the game (Hagen, 2013). Providing accompanying lesson plans for games fit well with games-based learning philosophies as the classroom provides opportunities to discuss, reflect on and debrief issues raised in the game (Crookall, 2010; Kriz, 2010).

Other examples of how digital games can bridge game-play to real life include emailing a politician about an issue addressed in the game, providing a facility to donate to a cause (Swain, 2007).
and requiring players to take action in their real life to participate in the game (for example, Eklund et al., 2007; Solomon et al., 2012).

WHERE POSSIBLE, GO BEYOND ROTE-LEARNING

In the past many educational games have been developed using rote-learning. Usually games like this will use a quiz-based game mechanic. Some game scholars criticize games of this style because they fail to live up to learner expectations of games (Kirriemuir and McFarlane, 2004; Egenfeldt-Nielsen, 2005). These types of games tend to be used when they are looking to improve response times to problems (e.g., number facts) or to check for the learning of facts.

Despite many games’ scholars calling for educational games to go beyond rote learning, this can be challenging, as it is easy to “prove” traditional ideas of learning by asking someone an example question and having them respond correctly. Klopfer et al. (2009) suggest that game designers look for the “play space” in the topic, the types of things experts in the field mull over in their spare time; whilst game design veterans, Brathwaite and Schreiber (2009) suggest that games can be made quite easily from systems, so they suggest that game designers look for the systems in the learning to adapt to game format. In addition to this, we also believe that games designers should also consider emotional design objectives (e.g., what do you want players to feel empathy with/disgust for) and explore ways the elements of a game could foster these emotions in players.

Two of the four mini-games in Orbit have some components based on a quiz mechanic. In part, this was because many of our learning objectives are fact-based and we were using a rules-based approach to understanding sexual abuse. However, the adventure game component of the game (the main storyline) does go beyond rote learning and all of the mini-games do have game-play elements that go beyond rote learning. If a game needs to resort to using quiz-like mechanics, players should be given opportunities to correct their mistakes in a meaningful way that goes beyond brute-force methods. Where we have adopted a quiz mechanic in Orbit, we do not simply provide direct and immediate feedback, but instead the correct solutions are uncovered through exploration and game play.

Learning game designers have more opportunity for creating games that go beyond rote learning when the game is viewed as being integrated into a wider learning program, not just as a standalone resource (Klopfer et al., 2009).

CONSIDER HOW THE PLAYER CAN MAKE THE WORLD THEIR OWN AND LET THEM SHARE IT WITH OTHERS

In order to encourage players to personalize game learnings, look for opportunities to help the player make the game their own. In Orbit we did this through encouraging players to build the player character avatar in their own likeness and trusted adult avatars in the likeness of the adults in their life. Orbit also allowed the player to customize a subset of game-rooms and gave class-mates the opportunity to see how other players customized their game rooms by virtually “visiting” their spaceship. These types of sharing opportunities are motivating for some players. When facilitating sharing opportunities, player safety must be considered, especially for games aimed at children. To this end, Orbit only allowed students from within class groupings to visit one another’s spaceships. We also limit communication between classmates and trusted adults through sharing of predefined positive messages.

Other game customization tools used by entertainment games include level editors (e.g., Ubisoft Entertainment, 2011), game photo album utilities (e.g., Heliö, 2005) and videoing game play (Ubisoft Entertainment, 2011). These tend to be used as motivational tools for players. Sometimes the game developer also provides the capacity for the player to share the content they created online.

CONDUCT RIGOROUS EVALUATION

Serious Games should be evaluated both against their learning objectives and for the quality of the game-play. Learning objectives should be measurable in some way. We used a variation on Bloom’s taxonomy of educational objectives: cognitive domain (Bloom et al., 1956; James, 2008) to ensure that our learning objectives were measurable. Interestingly, we found that many of our learning objectives tended to be knowledge and comprehension sections of Bloom’s taxonomy which are the least complex areas of cognitive domain; and this is possibly why we found quiz-based game mechanics most suited to some of the game learnings.

Unpublished research of the authors indicates that some teachers use games in their curriculum to emotionally engage students with a topic thus allowing the teacher to build on this engaging platform using other classroom activities. Therefore, learning game designers should also consider affective and user experience objectives when designing learning games.

Finally, we recommend, where possible, to use pre-existing, standardized measures when evaluating learning games and to consider employing comprehensive evaluation methodologies which may include a control group and pre- and post-tests. In addition to a comprehensive evaluation design, we also decided to include a separate play-test group to investigate the quality of the game-play thoroughly.

ACKNOWLEDGMENTS

The authors thank the Telstra Foundation http://www.telstrafoundation.com.au, the Queensland Police Service http://www.police.qld.gov.au/ and the Daniel Morcombe Foundation Inc. http://www.danielmorcombe.com.au/ for their financial support of this project. The authors also wish to thank Sunshine Coast Coolum Services Against Sexual Violence Inc., Department of Education, Training and Employment (Queensland, Australia), Curious Bear game design company and Alexandria Sharp for their ongoing support of this project.

REFERENCES


**Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Received: 29 April 2013; accepted: 20 January 2014; published online: 04 February 2014


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Section D.

DISCUSSION AND CONCLUSIONS
Introduction

This research sought to understand the experiences of educators who have used digital games in their classrooms and to use reflections on the design process of *Orbit* (Jones, Stieler-Hunt, & Rolfe, 2013), a digital game for classroom use, to develop recommendations for the use and design of digital games for classrooms. The research aims to answer these research questions:

1) What is impacting the use of digital game-play in primary and secondary school classrooms?

2) How can actors in the creation and application of digital games advance the use of digital game-play in the classroom to establish supportive and engaging classroom learning environments?

In this final chapter we collate the findings from across all of our research papers. Throughout the text we identify a number of *impacting factors* and *recommendations*. The *impacting factors* answer our first research question and the *recommendations* answer our second research question. The recommendations are aimed at a wide audience including teachers, teacher advisors, school administration teams, schooling systems, game designers, and game publishers. We have collated these *impacting factors* and *recommendations* together in Appendix 1.

This chapter is divided into three main sections: views of curricula and immersive digital games (IDGs), believers in IDGs, and designing IDGs for classrooms.

Views of Curricula and Immersive Digital Games (IDGs)

*Short form drill-and-practice games versus IDGs*

Short form drill-and-practice learning games based on fact recall are more likely to be used in classrooms than any other form of digital game (Takeuchi & Vaala, 2014). This may be because short form drill-and-practice learning games do not take very long to play, therefore they can fluently slot into interstitial spaces of the school day; many are freely available online; and the teacher can easily perceive how the game-play links to the curriculum because they generally require players to give answers to questions within a specific knowledge area. Despite their frequent use in classrooms, short form
drill-and-practice learning games only focus on lower levels of learning (Rice, 2007a) as they focus on learning by repetition (Okan, 2003), and are not games that students would usually choose to play during their free time (Kirriemuir & McFarlane, 2004; Takeuchi & Vaala, 2014). Therefore, children do not find short form drill-and-practice learning games as engaging as the digital games they choose to play at home.

In some of our papers (Stieler-Hunt & Jones, 2015b, 2015c) we distinguish between short form drill-and-practice learning games and digital games that are more interactive and immersive, requiring the player to make more complex and meaningful decisions. We describe these as immersive digital games (IDGs), which we define as “digital games that are more likely to involve the player in deep exploration and have them participate in activities that vary greatly from didactic instruction” (Stieler-Hunt & Jones, 2015b, 2015c). The learning taking place whilst playing IDGs is at a deeper level than drill-and-practice learning games (Rice, 2007a). Many IDGs are made purely for entertainment, however there are an increasing number being created for learning (e.g., *Lure of the Labyrinth* (Maryland Public Television, 2010a), *Orbit* (Jones, et al., 2013)).

**Impacting Factor 1.** Schools are not receiving maximum benefit from the use of digital game-play in classrooms because the short form drill-and-practice learning games most commonly used only provide opportunities for low-level learning and are not as engaging as IDGs.

**Recommendation 1.** Learning game designers, learning game publishers, schooling systems, teacher advisors, and teachers focus their efforts on creating and using IDGs for classrooms rather than short form drill-and-practice learning games.

**Holistic view of curricula**

We propose that when considering the impact, creation and application of IDGs for education, we take a holistic view of the term *curriculum* to mean “any learning that occurs in a school” (Stieler-Hunt & Jones, 2015d). This includes, but also looks beyond, subject content areas to encompass influencing thoughts and feelings, developing higher order thinking skills, building rapport and shared understandings between students, and inspiring action (Stieler-Hunt & Jones, 2015d). Our study on teachers’
beliefs about digital games aligns with this holistic view (Beavis et al., 2014). Most of the teachers in this study were just starting to use IDGs in their classrooms. We found teachers were more likely to think holistically about how digital games could be useful in the classroom with their focus being mostly on developing generic skills, rather than meeting specific, state-mandated curriculum objectives (Beavis, et al., 2014). Similarly, our study involving a different cohort of teachers, most of whom were further along their journey using IDGs in the classroom, found that teachers using IDGs in the classroom looked beyond state-mandated curriculum when considering the benefits of IDGs for student learning (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d). These benefits aligned strongly with their personal beliefs and values about what makes good teaching practice. In Paper 4 (Stieler-Hunt & Jones, 2015d) these beliefs and values underpinned the Game Uses Model for Classrooms where we show alignment with several learning theories and learning constructs, specifically modified situated cognition theory (J. R. Anderson, Reder, & Simon, 1996; Brown, Collins, & Duguid, 1989; Greeno, 1989), sense of community (Connell & Wellborn, 1991; Deci, 1991; Osterman, 2000), and Noddings’ (2002) model of moral education developed through care ethics.

**Recommendation 2.** Teachers and teacher advisors take a holistic view of curricula that includes but also goes beyond state-mandated curricula when considering how best to use IDGs in classrooms.

**Recommendation 3.** Designers of IDGs for classrooms take a holistic view of curricula during their game design process that includes but also goes beyond state-mandated curricula.

Note. Throughout this chapter, recommendations for designers and publishers of IDGs for classrooms are aimed at two groups: those producing IDGs predominantly for entertainment use, but could also be repurposed for classroom use; and those producing IDGs predominantly for classrooms.

**Design more IDGs intended for classrooms**

If the goal is for more teachers to use IDGs in their classrooms, then more learning games that resemble IDGs such as *Lure of the Labyrinth* (Maryland Public Television, 2010a) and *Orbit* (Jones, et al., 2013) need to be created. Ketelhut (2011) refers to these
Discussion and Conclusions

style of learning games as “new generation” (p. 541) games that form a part of the class of educational serious games. The term serious games was first coined by Sawyer (2002) and is an umbrella term used to encompass digital games designed for a purpose beyond entertainment (Stieler-Hunt, Jones, Rolfe, & Pozzebon, 2014). Most of the teachers using IDGs in our study were repurposing entertainment games (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d) because they disliked short form drill-and-practice learning games (Stieler-Hunt & Jones, 2015b). However, the teacher’s task would be much easier if the game designer had created the IDG with classroom use in mind. In Paper 7 (Stieler-Hunt, et al., 2014) we offer insights into how we did this with Orbit (Jones, et al., 2013) and, in Paper 6 (Scholes, Jones, Stieler-Hunt, & Rolfe, 2014), we identify the process we took to translate what was known about the effectiveness of traditional child sexual abuse prevention programs into games-based learning.

**Impacting Factor 2.** Most IDGs are not created with classroom use in mind.

**Recommendation 4.** Designers of IDGs and publishers of IDGs create more IDGs with classroom use in mind.

**Encouraging teachers to connect with games professionally**

In Paper 1 (Stieler-Hunt & Jones, 2015a), we found that teachers’ professional connection to using IDGs in the classroom came, in part, from teachers actively seeking and accessing information on using IDGs in the classroom. There are resources available to help teachers use IDGs in classrooms, however they are not widely available in channels that everyday teachers regularly use. For example, a search of the website containing teacher resources for Australia’s national curriculum (Australian Curriculum, 2015) using the search term *digital game* returned just 13 matches. All but one of these contained teaching resources for languages other than English and the other match related to tasking students to create digital games, not playing them. Changing the search term to *video game* or *computer game* yielded similar results. Therefore, it is unlikely that teachers who are not already considering using IDGs in the classroom will be exposed to resources that can help them use IDGs effectively.

In Paper 4 (Stieler-Hunt & Jones, 2015d) we explain that the most effective classroom use of IDGs occurs when teachers understand that the affordances of IDGs
extend beyond providing opportunities for students to learn content. For example, IDGs can be used as a shared experience to develop rapport between class members. IDGs can also be influencing artefacts helping students engage with curriculum intent, the big ideas underpinning curriculum. Further, teachers can use the engagement that IDGs incite to inspire students to do related out-of-game tasks. This concurs with much of the research around the role of the teacher in using IDGs effectively in classrooms (Egenfeldt-Nielsen, 2005; Kebritchi, 2010; Proserpio & Gioia, 2007; Van Eck, 2006). Researchers explain that teachers can help students find deeper meanings and see how these meanings apply beyond the game-world (Egenfeldt-Nielsen, 2005; Proserpio & Gioia, 2007; Van Eck, 2006). Kebritchi (2010) states that teachers need to view IDGs as part of the craft of teaching, not as a teacher replacement. This is also supported by Becker and Jacobsen (2005)’s study that found that teachers perceive their own efforts to implement learnings from professional development sessions facilitated the use of IDGs in the classroom. Conversely, Baek (2008) found that teachers identified inadequate access to support materials as a barrier to using IDGs in the classroom. Therefore, we recommend that effective practices of using IDGs in the classroom be disseminated by schooling systems through channels used by everyday teachers for their curriculum planning, such as those provided by teachers’ schooling systems.

**Recommendation 5.** Schooling systems disseminate effective use of IDGs through the channels they use to inform and influence everyday teachers’ curriculum planning.

*Using Rogers’ characteristics of innovation to predict diffusion rates*

Rogers’ (2003) *diffusion of innovations* theory is useful to predict and account for factors impeding or facilitating the diffusion of instructional technologies such as IDGs (Kebritchi, 2010; Surry & Farquhar, 1997). Rogers’ (2003) describes five “characteristics of innovations, as perceived by individuals” (p. 15) to help explain adoption rates. These characteristics are (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability and (5) observability. We have used Rogers’ (2003) diffusion of innovations theory in several of our papers to predict diffusion rates (Stieler-Hunt & Jones, 2015a, 2015b, 2015c). Table 1 examines each characteristic in terms of short form drill-and-
practice learning games and IDGs so that we can compare the factors affecting the rates of diffusion in classrooms for both types of digital games.

Table 1

<table>
<thead>
<tr>
<th>Characteristic of innovation</th>
<th>Short form drill-and-practice learning games</th>
<th>IDGs</th>
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<tbody>
<tr>
<td><strong>Relative advantage</strong></td>
<td>Properties of short form drill-and-practice learning games imply that teachers may perceive the following relative advantages:</td>
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<td></td>
<td>• These games are generally inexpensive (e.g. <em>Math Arcade on Funbrain</em> (2016), <em>Quiz Hub</em> (Schmidel, 2016)).</td>
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<tr>
<td></td>
<td>• The more expensive, subscription-based products offer extensive tracking of student progress (e.g. <em>Mathletics</em> (3plearning, 2010), <em>Literacy Planet</em> (Davis, 2016)). Non electronic teaching methods cannot offer this same level of automated tracking.</td>
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<td></td>
<td>• They are extremely convenient. They can be played at any time for short or longer periods of time because each level usually has a short play-time and there are always more levels to complete.</td>
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<td></td>
<td>⇒ Teachers may perceive short form drill-and-practice learning games to have a high degree of relative advantage.</td>
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<td><strong>Compatibility</strong></td>
<td>Short form drill-and-practice learning games are useful for developing automaticity (e.g. quickly recalling answers to multiplication tables) and offering opportunities to recall knowledge. However,</td>
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<td>Teachers who have a more holistic view of curricula and have successfully used IDGs in their classrooms perceive IDGs to be consistent with their values, views, and needs (Stieler-Hunt &amp; Jones, 2015a).</td>
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</table>
**Discussion and Conclusions**

<table>
<thead>
<tr>
<th>Characteristic of innovation</th>
<th>Short form drill-and-practice learning games</th>
<th>IDGs</th>
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<tr>
<td><strong>Characteristic of innovation</strong></td>
<td>they do not offer opportunities for higher order thinking (Rice, 2007a). Therefore, these games are most compatible with teachers who highly value students’ abilities to recall content. ⇒ It is likely that the perceived degree of compatibility will depend on the teachers’ views on curricula.</td>
<td>Teachers with a narrower view of curricula may not see IDGs as consistent with current values, views, and needs (Stieler-Hunt &amp; Jones, 2015a). ⇒ The perceived degree of compatibility will depend on the teachers’ views on curricula.</td>
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<tr>
<td><strong>Complexity</strong> refers to the degree to which the innovation is perceived as difficult to understand or use.</td>
<td>Short form drill-and-practice learning games tend to have short play-times so they fit into one lesson (Takeuchi &amp; Vaala, 2014). Game-play is simple, usually involving answering questions linked strictly to state-mandated curriculum (Egenfeldt-Nielsen, 2005), therefore they are also easy to play and use in classrooms. ⇒ It is likely that the perceived degree of complexity is low.</td>
<td>Using IDGs effectively is complex and the teacher’s role is paramount (Stieler-Hunt &amp; Jones, 2015a, 2015b, 2015d). ⇒ The perceived degree of complexity is high.</td>
</tr>
<tr>
<td><strong>Trialability</strong> refers to the degree to which an innovation can be adopted on a limited basis prior to final adoption.</td>
<td>The level of trialability differs depending on the game. However, many short form drill-and-practice learning games are freely available online (e.g. Math Arcade on Funbrain (2016), Quiz Hub (Schmidel, 2016)) or have cut-down versions that can be trialled prior to final purchase (e.g. Mathletics (3plearning, 2010)). ⇒ It is likely that the perceived degree of trialability is high.</td>
<td>The level of trialability differs depending on the game. However, IDGs are usually easy to trial. They may be slightly less trialable than many short form drill-and-practice games because schools are more likely to have licensing, hosting, or installation issues with IDGs (Stieler-Hunt &amp; Jones, 2015a). ⇒ The perceived degree of trialability is reasonably high but likely to be lower than the perceived degree of trialability for short form drill-and-practice learning games.</td>
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<td><strong>Observability</strong> refers to the degree to which results of the innovation are visible to others.</td>
<td>It is likely that students will perform better on tests that require them to answer questions similar to the content of the short form</td>
<td>The successes of using IDGs are not always easily visible to other teachers because teachers who use IDGs tend to use subjective measures of success that other</td>
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Table 1 illustrates that classroom teachers taking a narrow view of curricula as specific, state-mandated content objectives, are likely to perceive short form drill-and-practice learning games to have high degrees of relative advantage, compatibility, trialability, and observability; and low levels of complexity. Therefore, according to Rogers’ (2003) five characteristics of innovations, the diffusion rate of the use of short form drill-and-practice games is likely to increase. By comparison, IDGs are perceived as having high levels of relative advantage and compatibility by those who have used them and have a more holistic view of curricula, but not necessarily by those who have not used IDGs successfully in the classroom. Further, IDGs can be complex to integrate into the curriculum and are more likely to have complications regarding trialability than short form drill-and-practice learning games. Also the degree to which other teachers in their school can observe the results of the use of IDGs will vary depending on the teacher’s ability to communicate their perceived benefits. Rogers’ (2003) five characteristics of innovations predict, therefore, that the diffusion rate of the use of IDGs will be less than that of short form drill-and-practice learning games, until some of these factors are addressed. However, since short form drill-and-practice learning games only offer lower levels of learning (Rice, 2007a) and are less likely than IDGs to further the establishment of a supportive and engaging classroom learning environment, we believe that it is worthwhile to work towards advancing the use of IDGs in classrooms.
Advancing the use of IDGs

One way to advance the use of IDGs is to challenge teacher attitudes towards play. In Paper 2 (Stieler-Hunt & Jones, 2015b) we found that teachers who were using IDGs in the classroom valued play as a way to learn and they complained that other teachers did not. Teacher attitudes that digital games are a waste of time are found throughout the literature (Bourgonjon et al., 2013; Can & Cagiltay, 2006; Kennedy-Clark, 2011; Rice, 2007b; Rosas et al., 2003). Further, in Becker and Jacobsen (2005), most teachers said they would not use commercial-off-the-shelf (entertainment) games in their classrooms, which is similar to Takeuchi and Vaala (2014)’s study that found that fewer than 10% of games-using teachers use IDGs in their classrooms. Rieber (1996) suggests that play is quite often seen as “irrelevant or inconsequential” to learning, especially as people age, despite research indicating that play is an “important mediator for learning and socialisation” (p. 44) at all stages of life.

Impacting Factor 3. Play is undervalued as a method of learning, especially as people age, therefore IDGs are seen by some teachers as “time-wasters”.

Recommendation 6. Schooling systems, school administration teams, and teacher advisors promote to teachers the value of play as a way to learn throughout all stages of life.

Believers in IDGs

In our first paper (Stieler-Hunt & Jones, 2015a) we found that teachers who had used IDGs successfully in the curriculum were extremely passionate and had an almost religious fervour about their use of IDGs in the classroom. Similarly, our study (Beavis, et al., 2014) conducted with a different cohort of teachers, many of whom were novices with using IDGs in the classroom, found that teachers who were using IDGs successfully in their classrooms were “overwhelmingly positive about the potential for games to impact positively upon learning environments” (p. 576). This aligns with other studies that acknowledge that the adoption of IDGs depends on the acceptance of individual classroom teachers (Baek, 2008; Bourgonjon, et al., 2013; Can & Cagiltay, 2006; Egenfeldt-Nielsen, 2005; Rice, 2007b; Rosas, et al., 2003; Sandford, Ulicsak, Facer, & Rudd, 2006). In Paper 1 (Stieler-Hunt & Jones, 2015a) we introduced the concept of
being a believer in using IDGs in the classroom. We defined a believer as “a person who is persuaded that using digital game-play in the classroom can be beneficial for learning”. Many teachers felt that their believer status set them apart from other teachers, their non-believing colleagues. This feeling of separateness extends the existing literature on teacher acceptance of IDGs (see “Lone believers” sub-section of “Types of believers” section).

**Impacting Factor 4.** There is division between teachers who are overwhelmingly positive about the potential for IDGs to be used for student learning in classrooms (believer teachers) and those who are not (non-believing colleagues).

**Recommendation 7.** School administration teams identify teachers who are using IDGs meaningfully in the classroom, provide assistance as required, and show interest in and endorse their work (see Recommendation 11 for an approach to help non-believing colleagues become more open to using IDGs).

In Paper 1 (Stieler-Hunt & Jones, 2015a) we described the process of becoming a believer teacher as a set of intricately woven conditions such as connecting professionally to IDGs, connecting personally to IDGs, identifying as an ed. tech innovator / enthusiast and being invited to use IDGs in the classroom. All of these conditions need to be satisfied in order for a teacher to be a believer. For example, if a teacher enjoys playing IDGs in their spare time it does not automatically follow that they will perceive IDGs as being relevant for use in their classroom unless the other conditions are also met. Table 2 further elaborates these conditions and discusses each condition in light of related literature.

### Table 2

<table>
<thead>
<tr>
<th>Condition of becoming a believer</th>
<th>Related literature</th>
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<tbody>
<tr>
<td>Connecting professionally to IDGs</td>
<td>Teachers’ acceptance of digital game-play in the classroom increased after teachers had used them (Becker &amp; Jacobsen, 2005; Marino, Israel, Beecher, &amp; Basham, 2013; Rosas, et al., 2003). Teachers are more likely to use information and communication technologies if they can respond to their personal teaching experience</td>
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<tr>
<td>Teacher experiences enjoyment and their own form of subjective success when using IDGs purposefully in their classroom. Forms of subjective success include IDGs unite the class by improving social interactions; IDGs produced unexpected student motivation in areas in which the students traditionally did not perform well</td>
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<table>
<thead>
<tr>
<th>Condition of <em>becoming a believer</em></th>
<th>Related literature</th>
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<tr>
<td>(e.g., creative writing); students were transferring their game knowledge to out-of-game contexts; students were incredibly focussed; and IDGs helped bridge the divide between students’ everyday lives and their school experiences.</td>
<td>Teachers perceive that their own efforts to implement learnings from professional development sessions about using IDGs are what facilitated their use of IDGs (Becker &amp; Jacobsen, 2005). Teachers identify that inadequate access to support materials for using IDGs in the classroom is a barrier for using IDGs (Baek, 2008).</td>
</tr>
<tr>
<td>Teachers avail themselves of information and advocacy on using IDGs for student learning.</td>
<td>Literature focuses on teachers’ experiences as digital game-players rather than their experiences as parents (Becker &amp; Jacobsen, 2005; Bourgonjon, et al., 2013; Kenny &amp; McDaniel, 2011). There is conflicting evidence as to whether teachers’ experiences playing digital games impact their acceptance of using IDGs in the classroom (e.g., compare Becker and Jacobsen (2005) with Bourgonjon, et al. (2013)). Bourgonjon, et al. (2013)’s quantitative study found that playing IDGs is a weak predictor of a teacher’s intention to use IDGs in the classroom. None of these studies focus on teachers’ experiences with IDGs as parents.</td>
</tr>
<tr>
<td><em>Connecting personally to IDGs</em></td>
<td>In a quantitative study the construct personal innovativeness was found to have a weak but statistically significant effect on teachers’ perceptions of usefulness of IDGs (Bourgonjon, et al., 2013).</td>
</tr>
<tr>
<td>Teachers have a personal interest in and value IDGs. This personal interest developed though playing IDGs themselves or being involved as a parent in their own children’s experiences with IDGs.</td>
<td>Teachers are invited by someone in perceived authority to use IDGs in the classroom. This phenomenon is absent from many studies although it is common for studies to involve teachers who use games in their classrooms only after an invitation to participate in a games-based research project (e.g., Barab, Pettyjohn, Gresalfi, Volk, &amp; Solomou, 2012; Egenfeldt-Nielsen, 2005; Hämäläinen &amp; Oksanen, 2014; Marino, et al., 2013; Tüzün, 2007).</td>
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<tr>
<td><em>Identifying as an ed. tech innovator / enthusiast</em></td>
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<tr>
<td>Teachers perceive themselves as someone who wants to use technologies in their own teaching.</td>
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<tr>
<td><em>Being invited to use IDGs in the classroom</em></td>
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The *connecting professionally* condition is strongly supported in the existing literature. Other conditions such as *connecting personally* and *identifying as an ed. tech innovator / enthusiast* have limited support within the literature, with studies identifying these conditions as having either a weak impact on teachers’ acceptance of IDGs or conflicting evidence as to the strength of their impact. However, for both conditions, the focus in other literature was similar but not identical to ours. For example, in *connecting personally*, no studies explored teachers’ experiences with IDGs as parents, they only looked at teachers’ personal game-play histories. Teachers’ experiences with IDGs as parents was a strongly recurring theme in our research and is an area that is overlooked in other research. Therefore, we believe that it should be considered when studying teachers’ acceptance of IDGs for classroom learning.

*Identifying as an ed. tech innovator / enthusiast* also featured strongly in our data as a pre-requisite for teachers to be *believers* in IDGs. Although all *believers* saw themselves as being educational technology innovators or enthusiasts, the converse was not true. Therefore, we believe that encouraging more use of educational technologies in the classroom will assist the diffusion of IDGs in classrooms, but on its own, it is insufficient.

Finally, the *being invited* condition is not discussed in other studies. However, it is a technique that is often used to find participants for games-based learning research studies and this in itself alters teachers’ acceptance levels of using IDGs in classrooms. This was a recurring factor in our research. Therefore, we believe it warrants more investigation in future studies.

**Impacting Factor 5.** *Believer* teachers are more likely to use IDGs than their *non-believing* colleagues.

**Impacting Factor 6.** The conditions for becoming a *believer* teacher are multi-faceted and relate to personal experiences with IDGs, experiencing enjoyment and success with using IDGs in the classroom, being a technology advocate or enthusiast, being professionally interested in using IDGs in the classroom, and being invited by someone in perceived authority to use IDGs in the classroom.
**Recommendation 8.** School administration teams and teacher advisors encourage teachers to become *believers* in using IDGs in the classroom through staff discussions about the value of IDGs in the home and the potential value for use in schools, providing support and encouragement for teachers who want to use IDGs in their classrooms (see Recommendation 7), encouraging the use of educational technologies in classrooms, and presenting teachers with opportunities to use IDGs in the classroom.

**Recommendation 9.** Researchers investigating teachers’ acceptance of IDGs for use in the classroom explore teachers’ experiences with IDGs as parents, as well as their personal experiences with IDGs.

*Types of believers*

We found that many *believer* teachers perceived that other teachers at their school had no desire to use IDGs in their classrooms (Stieler-Hunt & Jones, 2015b). Others, however, became effective mentors in their schools and helped other teachers learn to successfully use IDGs in their classrooms (Stieler-Hunt & Jones, 2015c). Next, we explore the experiences of both groups of teachers.

*LONE BELIEVERS*

Many of our *believer* teacher participants perceived that, within their school, they were alone or almost alone in their interest in using IDGs in their classrooms. We documented this phenomenon in Paper 2 (Stieler-Hunt & Jones, 2015b). We describe them as *lone believer* teachers which we define as, “an educator who is persuaded that using IDGs in the classroom can be beneficial for learning and feels that this belief somehow keeps them apart from most if not all of their nearby colleagues” (Stieler-Hunt & Jones, 2015b). By *nearby colleagues* we mean teachers at the same school.

Teachers became *lone believers* due to differences in beliefs and attitudes towards the value of IDGs for classroom use. Negative views on IDGs within schools and society-at-large have been documented in the literature (C. A. Anderson, 2004; Dietz, 1998; Dill & Thill, 2007; Fisher, 1994; Grüsser, Thalemann, & Griffiths, 2007; Ivory, 2006; Kim, Namkoong, Ku, & Kim, 2008; Kirriemuir & McFarlane, 2004). *Lone believer* teachers working in relative independence within their schools (e.g., specialty teachers), were able to use IDGs providing their use did not impact others in the
school. We labelled this phenomenon *using games on the down-low*. Lone believer teachers ran into *roadblocks* that forced them to alter or minimise their use of IDGs (*compromising and evading*). For example, one teacher explained how she had to switch from using IDGs to short form drill-and-practice learning games so that the use of digital games would be more palatable to the teachers and administration team in her school. The techniques of employing *compromising and evading* tactics and *using games on the down-low* bear some similarities to Takeuchi and Vaala (2014)’s cluster analysis that identified a sub group of teachers as *barrier busters*, teachers who show ingenuity to overcome the barriers to using digital games in their classrooms. Although the *roadblocks* identified in Paper 2 (access, financial, physical space, political, student online safety, technical support) (Stieler-Hunt & Jones, 2015b) are reasonably typical (Baek, 2008; Becker & Jacobsen, 2005; Groff, Howells, & Cranmer, 2010; Kirriemuir & McFarlane, 2003; Rice, 2007b; Sandford, et al., 2006; Williamson, 2009), we surmise that these barriers act as a smoke-screen for the real issue: that teachers fail to find adequate support to use IDGs in their classrooms because their nearby colleagues are ideologically opposed to their use. These differing ideologies occur because their colleagues do not have a personal and/or professional connection to IDGs. Further, the *believer* teacher’s attempts to convince them of the value of IDGs are ineffective and serve to create a *cycle of resentment* which is also partially fuelled by students who express dissatisfaction with their respective teachers because peers were playing games in class and they were not (Stieler-Hunt & Jones, 2015b).

**Impacting Factor 7.** Many teachers who want to use IDGs in the classroom either operate surreptitiously or alter/minimise their use of IDGs. Whilst this is the case, the use of IDGs will not reach its full potential in schools.

**Impacting Factor 8.** Teachers who do not use IDGs in their classrooms may resent teachers who are using IDGs because the non IDG-using teachers do not view the classroom as an appropriate place for IDGs and their students complain that they are unable to use IDGs during class time.

These circumstances led to the *lone believer* teacher *feeling alienated* from their nearby colleagues (Stieler-Hunt & Jones, 2015b). We define *feeling alienated* as...
“conscious that their views on using IDGs in the classroom keep them somewhat intellectually and sometimes socially separated from their colleagues” (Stieler-Hunt & Jones, 2015b). The alienation was felt to varying degrees. Some experienced extreme feelings of alienation, with one teacher applying for a transfer to a new school, whilst others felt that they were working in a silo, with no other staff at their school interested in the work they were doing with IDGs (Stieler-Hunt & Jones, 2015b). Other studies do not tend to discuss alienation felt by teachers using IDGs in the classroom. However, other studies have found that most teachers are not currently using, and do not intend to use, IDGs in their classrooms (Becker & Jacobsen, 2005; Bourgonjon, et al., 2013; Kebritchi, 2010; Kenny & McDaniel, 2011; Takeuchi & Vaala, 2014). This would indicate that, at best, the majority of teachers either do not consider the use of IDGs in the classroom a priority or, at worst, may not approve of IDGs in the classroom at all.

**Impacting Factor 9.** At best, *lone believers* are having very little impact on their nearby colleagues because they are operating in a silo. At worst, *lone believers* are having an adverse impact on the advancement of IDGs in their schools.

**Recommendation 10.** School administration staff and teacher advisors work towards creating an operating culture that views the use of IDGs in classrooms as acceptable.

**Recommendation 11.** School administration staff sanction and provide the necessary time, training, and resources for *lone believers* who are using IDGs effectively in the classroom to become effective mentors to nearby colleagues.

**Effective Mentors**

Many studies call for making teachers’ learning about effective use of IDGs a priority in order to further advance the use of IDGs in classrooms (Beavis, et al., 2014; Becker, 2007; Becker & Jacobsen, 2005; Egenfeldt-Nielsen, 2005; Kenny & McDaniel, 2011; Kirriemuir & McFarlane, 2003; Perrotta, 2013; Takeuchi & Vaala, 2014). In Paper 3 (Stieler-Hunt & Jones, 2015c) we describe our inductively derived Mentoring Model to Assist Cohorts of Teachers to Use Digital Games in the Classroom (Mentoring Model) that is designed to help a *believer* teacher become a formal or informal mentor to their nearby colleagues. This approach is in accordance with literature that found that personal approaches to introducing games in classrooms including support from
nearby colleagues (Becker & Jacobsen, 2005) may be more effective than top-down approaches (Bourgonjon, et al., 2013; Kenny & McDaniel, 2011).

**Impacting Factor 10.** Researchers agree that there is insufficient teacher professional development for using IDGs in the classroom.

**Impacting Factor 11.** Although support from the school administration team is desirable, personal approaches to games-based learning professional development are more likely to be effective than top-down approaches.

Our inductively derived Mentoring Model was derived from the experiences of two believer educators who were able to successfully mentor nearby colleagues (Stieler-Hunt & Jones, 2015c). Like many other believers, each mentor started using IDGs in classrooms after a person in perceived authority (in both cases it was a staff member from their schooling systems’ regional office) invited them to participate in a trial program (Stieler-Hunt & Jones, 2015a). Although two is a very small sample size, we were able to contrast this with negative cases from the wider data set. By negative cases, we are referring to teachers who unsuccessfully attempted to mentor other teachers in their school to use IDGs in their classrooms. These teachers were unsuccessful due to not having adequate time to support their colleagues, negative attitudes of their colleagues towards IDGs, the believer carrying out curriculum planning for their colleagues rather than with their colleagues, and the school’s operating culture not adequately supporting the use of IDGs in classrooms. This mentoring role is not common and no other educators in this role volunteered to take part in our research.

Our Mentoring Model indicates that successful mentors will not be scheduled to teach full-time in the classroom, thus giving them time to responsively support the teachers they are mentoring. We acknowledge that this may cause a financial burden for either the school or the teacher who chooses to work part-time. However, there are already teacher advisor positions within schools where the staff member does not have a full-time teaching load. For example, in Queensland schools the heads of departments and heads of curriculum help teachers plan and implement the curriculum. Therefore, if the educators in these positions have an understanding of
how to use IDGs successfully in the classroom, they could act as mentors at no additional cost to the school or the teacher, as the use of IDGs can be integrated within their normal role. If mentors cannot be sourced from these roles, the school administration team could choose to reduce the teaching load of the mentor for a defined period, thus allocating them time to responsively support teachers as they plan and implement the unit of work involving IDGs.

Successful mentors engaged a small cohort of mentee teachers (e.g., teachers of a particular year level) in a collegial planning process prior to implementation. The implementation of the unit of work featuring IDGs was temporally staggered throughout the school year so that the implementation began with the most enthusiastic teachers and eventually filtered to the other teachers in the cohort. Taking this approach meant that problems were able to be ironed out with the most motivated teachers prior to mainstream adoption by the rest of the cohort of teachers. The result of using this process was that the cohort of teachers were much more open to using IDGs in the classroom and the believer teacher did not feel alienated.

**Impacting Factor 12.** Appropriate mentoring can be an effective way to help cohorts of teachers experience success with using IDGs in the curriculum and view their use in education positively.

**Impacting Factor 13.** Very few schools adopt a mentoring approach to help teachers use IDGs in the curriculum.

**Recommendation 12.** School administration teams identify suitable believer teachers to become mentors and adopt our Mentoring Model.

**COMPARING LONE BELIEVERS WITH EFFECTIVE MENTORING USING THEORY**

In this section we use Rogers’ (2003) diffusion of innovations theory and Ajzen’s (1991) theory of planned behaviour to compare the likely diffusion rates of IDGs in the curriculum as a result of lone believer teachers and mentors who follow our Mentoring Model. Table 3 compares the likely impacts both groups will have on diffusion rates according to the five characteristics of innovation as outlined by Rogers (2003), while
Discussion and Conclusions

Table 4 compares the likely impacts both groups will have on diffusion rates according to Ajzen’s (1991) three concepts to predict behavioural intention.

Table 3
Comparing the lone believer teacher with our Mentoring Model according to Rogers’ (2003) five characteristics of innovation that affect diffusion rates of innovations

<table>
<thead>
<tr>
<th>Characteristic of innovation</th>
<th>Predicted impact on diffusion rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relative advantage</strong></td>
<td></td>
</tr>
<tr>
<td>describes the degree to which the innovation is perceived to be better than what it supersedes.</td>
<td>Nearby colleagues do not perceive using IDGs in the classroom as being appropriate for classroom use and therefore do not see them as better than what they supersede. ⇒ Diffusion rate is unlikely to increase due to colleagues not perceiving a relative advantage.</td>
</tr>
<tr>
<td></td>
<td>Nearby colleagues are supported to use IDGs to assist with both the delivery of content and to look beyond content to how they can help with establishing a better learning environment. Therefore nearby colleagues are likely to perceive that using IDGs is better than the teaching methods it supersedes. ⇒ Diffusion rate is likely to increase due to an increase in perceived relative advantage.</td>
</tr>
</tbody>
</table>

| **Compatibility**           |                                   |
| refers to the degree to which the innovation is perceived to be consistent with current values, views, and needs. | Nearby colleagues have different values, views, and needs regarding curriculum implementation to their lone believer colleague. Therefore nearby colleagues do not see IDGs as compatible with their teaching practices. ⇒ Diffusion rate is unlikely to increase due to incompatibility with current values, views, and needs. |
|                              | The mentor simultaneously moulds the unit of work in response to their colleagues and influences the views of nearby colleagues, by being responsive and supportive during the collegial planning process and subsequent implementation. Therefore the resulting IDG based unit of work will be consistent with the nearby colleagues’ values, views, and needs. ⇒ Diffusion rate is likely to increase due to an increase in perceived compatibility. |

| **Complexity**              |                                   |
| refers to the degree to which the innovation is perceived as difficult to understand or use. | Even believers admit that using IDGs meaningfully in curricula can be difficult. For example, curriculum matches can be difficult to identify. Therefore, nearby colleagues are likely to perceive using IDGs in their curriculum as having a high degree of complexity. ⇒ Diffusion rate is unlikely to increase due to significant complexity. |
|                              | The mentor works to breakdown the complexities of implementing the IDG based unit of work for teachers by responsively supporting any issues or concerns that the teachers raise. In addition, teachers who are most likely to find the implementation difficult are scheduled to implement the unit of work after teachers who are likely to find the unit less complex. Thus, many difficulties and concerns will |
Table 3 indicates that our Mentoring Model is likely to have greater levels of perceived relative advantage, compatibility, trialability, and observability for nearby colleagues, than the work of the lone believer teacher. Also the Mentoring Model is likely to have lower levels of perceived complexity than the work of the lone believer teacher. Therefore, we conclude that, according to Rogers’ (2003) diffusion of innovations theory, believer teachers who follow our Mentoring Model are more likely

<table>
<thead>
<tr>
<th>Characteristic of innovation</th>
<th>Predicted impact on diffusion rate</th>
<th>Teacher using Mentoring Model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trialability</strong> refers to the degree to which an innovation can be adopted on a limited basis prior to final adoption.</td>
<td>IDGs can be adopted on a limited basis prior to wider adoption, however depending on the IDG used, there can be licensing or hosting challenges.</td>
<td>Trialling the IDG prior to final, wider adoption is built into the model. After the <strong>collegial planning</strong> phase, the most enthusiastic of the cohort of teachers commence implementation. If at this point, the cohort decides the unit of work is unsatisfactory, it can be modified or completely rebuilt prior to final adoption by the wider cohort.</td>
</tr>
<tr>
<td><strong>Observability</strong> refers to the degree to which results of the innovation are visible to others.</td>
<td>Despite their best efforts lone believers operate in a silo. Therefore the degree of observability will be low.</td>
<td>During the temporally staggered implementation process, the cohort of teachers will observe the progress of those before and after them. Those who implement the teaching unit before can provide support, alongside the mentor, for subsequent teachers; and those who implement after can observe the successes and issues experienced by earlier teachers. It is likely that progress will be discussed informally between staff.</td>
</tr>
</tbody>
</table>

*Table 3* indicates that our Mentoring Model is likely to have greater levels of perceived relative advantage, compatibility, trialability, and observability for nearby colleagues, than the work of the lone believer teacher. Also the Mentoring Model is likely to have lower levels of perceived complexity than the work of the lone believer teacher. Therefore, we conclude that, according to Rogers’ (2003) diffusion of innovations theory, believer teachers who follow our Mentoring Model are more likely
to increase the diffusion of IDGs in classrooms within their school than lone believer teachers (Stieler-Hunt & Jones, 2015b, 2015c).

Ajzen’s (1991) theory of planned behaviour is composed of three concepts: attitude toward the behaviour, subjective norm, and perceived behavioural control. This theory is useful for predicting human behavioural intentions. In Table 4 we compare the efforts of the lone believer teacher with the efforts of mentors who implement our Mentoring Model according to the three key concepts from Ajzen (1991)’s theory of planned behaviour.

Table 4
Comparing the lone believer teacher with our Mentoring Model according to Ajzen’s (1991) three concepts that impact behavioural intention according to the theory of planned behaviour

<table>
<thead>
<tr>
<th>Predictor of behavioural intention</th>
<th>Predicted impact on behavioural intention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude toward the behaviour</strong> refers to the degree to which a person views a behaviour as favourable or unfavourable.</td>
<td>Nearby colleagues do not develop favourable attitudes towards using IDGs in the classroom. ⇒ Behavioural intention to use IDGs is unlikely because attitudes will remain negative.</td>
</tr>
<tr>
<td><strong>Subjective norm</strong> refers to the “perceived social pressure to perform or not perform a behaviour” (Ajzen, 1991, p. 188).</td>
<td>There may be social pressures exerted on nearby colleagues to use IDGs in the classroom from the lone believer teacher and from students. However, there is no (or negative) social pressure from nearby colleagues, school administration, and society-at-large. Therefore, it is unlikely there would be sufficient social pressure for most nearby colleagues to use IDGs. ⇒ Behavioural intention to use IDGs is unlikely as there</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Predictor of behavioural intention | Predicted impact on behavioural intention
--- | ---
*Lone believer* teacher | Teacher using Mentoring Model

<table>
<thead>
<tr>
<th><strong>Perceived behavioural control</strong> refers to the perception of the difficulty level of doing the behaviour.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Even lone believer</em> teachers admit that identifying the best ways to include IDGs in the classroom can be difficult. This perception would be stronger for those who already have very little interest in using IDGs in the classroom.</td>
</tr>
<tr>
<td>⇒ Behavioural intention to use IDGs is unlikely as teachers will not have high levels of perceived behavioural control.</td>
</tr>
<tr>
<td>During the <em>collegial planning</em> phase, the teachers have an opportunity to mould the implementation to a level of difficulty with which the teachers are comfortable. Those who perceive that using IDGs in the classroom will be difficult are scheduled to implement the unit later than those who do not perceive it as being difficult. The preceding teachers can discover ways to make the IDG-use less difficult and provide advice, support, and an exemplar to future teachers. In addition, mentors responsively support teachers who are fearful.</td>
</tr>
<tr>
<td>⇒ Behavioural intention to use IDGs is likely, due to an increase in levels of perceived behavioural control.</td>
</tr>
</tbody>
</table>

As can be seen in Table 4, according to Ajzen’s (1991) theory of planned behaviour, the *lone believer* is unlikely to influence nearby colleagues to develop positive attitudes towards using IDGs, incite social pressure for nearby colleagues to use IDGs in the classroom, or help lower the perceived difficulty levels of using IDGs in the classroom. However, successful implementation of our Mentoring Model is likely to result in nearby colleagues having positive attitudes towards using IDGs in the classroom, inciting social pressure for nearby colleagues to use IDGs in the classroom, and helping lower the perceived difficulty levels of using IDGs in the classroom. Therefore, we predict that adoption of our Mentoring Model by schools will advance the use of IDGs in classrooms.
How believers use IDGs

In this section we explain the importance the role of the teacher plays in order to receive maximum benefit from using IDGs in classrooms. Next, we describe our inductively derived Games Use Model for Classrooms (GUMC), and how it aligns to innovation theory and several learning theories and constructs.

Importance of the role of the teacher

In the previous section we explained that teachers’ understandings of IDGs and their attitudes towards using IDGs in the classroom has an impact on whether the use of IDGs will become more widespread. Therefore, individual teachers play an important role in the adoption of IDGs. Our study (Beavis, et al., 2014) found that teachers undervalue their role. It calls for further attention to the pedagogies teachers use and the view of learning teachers have, to effectively and appropriately use IDGs in the classroom.

Impacting Factor 14. Teachers’ attitudes and beliefs about IDGs impact on whether the use of IDGs in classrooms will become more widespread.

Impacting Factor 15. Many teachers undervalue their role in the adoption and use of IDGs in classrooms.

Studies have indicated that the teacher plays a significant role in optimising learnings from IDGs (Hämäläinen & Oksanen, 2014; Jenkins, 2003; Kebritchi, 2010; Proserpio & Gioia, 2007; Van Eck, 2006). Kirriemuir and McFarlane (2003) found that the use of IDGs in classrooms is dependent upon the enthusiasm and ingenuity of individual teachers and their advisors. Van Eck (2006) argues that introducing games requires “careful analysis and a matching of content, strengths, and weaknesses of the game to the content to be studied” (p. 7) and Egenfeldt-Nielsen (2005) states, “the fruits of computer games can only be enjoyed if the teacher learns how to harvest the fruits” (p. 258).

We propose that teachers should view themselves as learning designers and that IDGs be seen as part of the craft of teaching, not a replacement for the teacher (Kebritchi, 2010). This aligns with much of the research around the recommended role
Discussion and Conclusions

of the teacher when using IDGs in the classroom. For example, Proserpio and Gioia (2007) state that students are capable of making connections between game worlds and out-of-game worlds but lack the judgment to know which connections to make. Teachers can help students identify connections and develop rationales for their importance. Similarly, Egenfeldt-Nielsen (2005) posits that the teacher’s role is to guide students to find deeper meanings and see how it applies beyond the game world. Van Eck (2006) calls this using and making “teachable moments” (p. 10) through an understanding of the game-play and designing meaningfully linked out-of-game activities that can be used pre, post, and during game-play.

**Impacting Factor 16.** Teachers play a significant role in optimising students’ learning from IDGs.

Another role of the teacher is that they can influence parents to understand the value IDGs can provide the educational process. In our study with teachers who were novices to using IDGs (Beavis, et al., 2014), the teachers indicated that they felt confident in their ability “to ‘sell’ games to children’s parents” (p. 578). Likewise, in our studies with teachers who had been using IDGs for longer periods of time (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d), we found that parental attitudes were not a barrier to using IDGs in the classroom when teachers communicated clearly with parents what IDGs they were using and why.

**Impacting Factor 17.** Teachers’ attitudes and beliefs about using IDGs in the classroom influence parents’ attitudes and beliefs about using IDGs in the classroom.

During the design of our child sexual abuse prevention IDG *Orbit* (Jones, et al., 2013), we considered the teacher’s role very carefully. We were aware that many teachers do not yet feel comfortable using IDGs in the classroom and many feel inadequately prepared to deal with child protection issues despite the importance of their role (Scholes, Jones, Stieler-Hunt, Rolfe, & Pozzebon, 2012). We created more traditional classroom activities such as lesson plans and discussion guides to accompany the IDG (Scholes, et al., 2014; Stieler-Hunt, Scholes, Mclean, Mclean, & Sharp, 2013) and provided additional training for teachers on the *Orbit* website in the form of general information on child sexual abuse, including how to best respond to a
disclosure of abuse; information about key concepts raised in the IDG; and suggested implementation models (Scholes, et al., 2014; Stieler-Hunt, Jones, & Rolfe, 2013; Stieler-Hunt, et al., 2014). We believed that these resources would be helpful for all teachers: those comfortable using IDGs in the classroom and those who were not, and those comfortable with teaching sexual abuse prevention concepts and those who were not.

**Recommendation 13.** Schooling systems, school administration teams, and teacher advisors present to teachers varying examples of how IDGs can be used effectively in the classroom.

**Recommendation 14.** Schooling systems, school administration teams, and teacher advisors provide professional development for teachers on how to use IDGs in the classroom that focus on the teacher’s role and treat IDGs as more than content repositories.

**Recommendation 15.** Designers and publishers of IDGs for classrooms provide training and guidance for teachers in how to effectively use the IDG in the classroom (e.g., teachers’ guides, discussion guides, and sample lesson plans).

**GAME USES MODEL FOR CLASSROOMS (GUMC)**

Paper 4 (Stieler-Hunt & Jones, 2015d) explores how believer teachers use IDGs in the classroom and presents an inductive model (GUMC) that generalises how these believer teachers have used IDGs in the classroom. The GUMC is about much more than sitting students in front of a computer game; it aims to help the teacher elaborately intertwine IDGs with curriculum. This can only be achieved with significant teacher involvement. Without this, IDGs will not be used to their fullest potential in classrooms (Jenkins, 2003; Kebritchi, 2010). The GUMC helps to generalise the ingenuity of the individual teachers participating in this study, in an effort to demystify the use of IDGs in the classroom for other teachers.

The GUMC aims to help teachers explore the use of IDGs for their unique classroom context. Its four components are practising, discovering affinity, influencing, and inspiring. We believe that this model can be helpful to advance the use of IDGs in the classroom. The discovering affinity section focuses on using IDGs to build a
supportive classroom environment, whilst the practising, influencing and inspiring sections aim to use the engrossing nature of IDGs to create an engaging classroom learning environment. Our study featuring novice IDG-using teachers (Beavis, et al., 2014) and our studies featuring more experienced IDG-using teachers (Stieler-Hunt & Jones, 2015a, 2015b, 2015c) indicate that there is confusion as to how to best use IDGs in classrooms. Other studies concur with this (Baek, 2008; Bourgonjon, et al., 2013; Can & Cagiltay, 2006; Evans & Barbour, 2007; Kennedy-Clark, 2011; Kirriemuir & McFarlane, 2004; Proctor & Marks, 2013; Rice, 2007b; Takeuchi & Vaala, 2014). A holistic model such as the GUMC may help ease this confusion.

The practising component of the GUMC explores opportunities for game-play to “provide opportunities for students to practice skills” (Stieler-Hunt & Jones, 2015d). This component could generally be considered the most rudimentary of the four components because it explores how teachers can exploit game-play for curricula purposes. If the game-play is viewed holistically, more sophisticated opportunities may be discovered. For example, in Paper 4 (Stieler-Hunt & Jones, 2015d) we outline how a teacher used turn-waiting times as an opportunity for students to practice good manners as part of a social-emotional curriculum.

The influencing component acknowledges that IDGs are created works that have an underpinning set of beliefs and values, and recognises that IDGs can persuade players. It explores how these influencing factors can be employed in the classroom to either influence students’ attitudes and beliefs, help students understand the curriculum intent (big ideas of the curriculum), or to encourage students to think critically (Stieler-Hunt & Jones, 2015d).

The discovering affinity component explores methods to purposefully use IDGs to enhance the shared class experience (Stieler-Hunt & Jones, 2015d). It aims to increase students’ sense of community, which can create an environment that is more conducive to learning (Connell & Wellborn, 1991; Deci, 1991; Osterman, 2000). In our study (Beavis, et al., 2014) teachers commonly expressed that IDGs provide opportunities to improve students’ social skills. Later in the paper, it is suggested that introducing IDGs into a classroom is not automatically going to “fix” pre-existing
troubling relationships between students. We argue, however, that if an IDG is used well in the curriculum, the resulting shared experiences can be the basis for building what Gee (2007) labels an *affinity group* between class members, and this can strengthen and improve relationships. The Merriam-Webster dictionary defines an affinity group as “a group of people having a common interest or goal or acting together for a specific purpose” (affinity group, 2015). The *discovering affinity* component of the GUMC encourages teachers to consider using IDGs in ways that will be more likely to help students to build affinity with each other.

The *inspiring* component explores ways teachers can capitalise on the motivation provided by the other components of the model to inspire students to “learn, create, and apply their learning in new contexts” (Stieler-Hunt & Jones, 2015d). This includes students creating artefacts relating to the IDG, written or verbal reflections on game-play or game decisions, or having class discussions about aspects of the IDG. This component aligns with the *creating artefacts* aspect of the *collegial planning* phase of our Mentoring Model (Stieler-Hunt & Jones, 2015d) that recommends teachers purposefully identify artefacts for students to create that are grounded in the game-play and further curricula goals.

The four components of the GUMC provide teachers and teacher advisors with a set of lenses that they can use to explore the possibility space for using particular IDGs in their classrooms. In our study (Beavis, et al., 2014), we identified that teachers who are novices to using IDGs in the classroom had some short-sighted views of how IDGs can be used in the classroom. For example, the paper suggests that teachers tend to see IDGs as a “springboard to learning [rather] than a means to learning in themselves” (p. 577). Further, the teachers also saw IDGs as a way to disguise learning, which is problematic because it presents learning as something to be endured rather than something that can be fulfilling and fun. Our intent is that the GUMC will expose teachers to the possibility space that exists around the use of IDGs in classrooms (Stieler-Hunt & Jones, 2015d).

The GUMC helps teachers explore the extent of the possibility space that includes, but also looks beyond, content (Stieler-Hunt & Jones, 2015d). This concept of
Discussion and Conclusions

looking more broadly than just content is also integrated into our Mentoring Model within the *collegial planning* phase (Stieler-Hunt & Jones, 2015c). Further, it is consistent with our study (Beavis, et al., 2014) where teachers explained that IDGs support the development of generic skills such as creativity, thinking skills, problem solving skills, teamwork, and collaboration.

We believe that the GUMC helps advance the meaningful use of IDGs in classrooms because it will improve each of the five factors (Rogers, 2003) impeding or facilitating the diffusion of innovations (see Table 5).

Table 5

*Relating the GUMC to each characteristic of innovation* (Rogers, 2003)

<table>
<thead>
<tr>
<th>Characteristic of innovation</th>
<th>How GUMC relates to characteristics of innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relative advantage</strong></td>
<td>Increases relative advantage by highlighting the various ways IDGs can be used in the curriculum, thus helping teachers understand that IDGs can teach more than just skills or fact recall.</td>
</tr>
<tr>
<td><strong>Compatibility</strong></td>
<td>Increases compatibility by shifting understandings about how IDGs can be used, so that the teacher can look to IDGs to fulfill different values, views, and needs.</td>
</tr>
<tr>
<td><strong>Complexity</strong></td>
<td>Reduces the complexity of using IDGs in the classrooms by providing prompts and considerations for using IDGs in the classroom.</td>
</tr>
<tr>
<td><strong>Trialability</strong></td>
<td>Increases trialability by providing a framework for teachers to consider adopting an IDG within their curriculum on a limited basis prior to final adoption.</td>
</tr>
<tr>
<td><strong>Observability</strong></td>
<td>Increases observability by providing more information on how IDGs can enhance the classroom learning environment. Therefore, teachers can look beyond increased test scores when determining if the use of IDGs was successful.</td>
</tr>
</tbody>
</table>

Paper 4 (Stieler-Hunt & Jones, 2015d) uses educational theories to explain how this extended possibility space can facilitate the establishment of supportive and engaging classroom learning environments. The paper compares the characteristics of the GUMC with key aspects of three learning theories and constructs: modified situated cognition theory (J. R. Anderson, et al., 1996; Brown, et al., 1989; Greeno, 1989), sense of community (Connell & Wellborn, 1991; Deci, 1991; Osterman, 2000), and
Noddings’ (2002) model of moral education. Together, these learning theories and constructs encompass many of the criteria for a supportive and engaging learning environment. Although there is overlap between them, we propose that modified situated cognition theory (J. R. Anderson, et al., 1996; Brown, et al., 1989; Greeno, 1989) predominantly focuses on situations that encourage learning; sense of community (Connell & Wellborn, 1991; Deci, 1991; Osterman, 2000) predominantly focuses on building a supportive learning environment; while Noddings’ (2002) model of moral education predominantly focuses on building an engaging learning environment grounded in support. Table 6 explains how key aspects of each learning theory or construct predominantly support one of our research focus areas: establishing a supportive and engaging classroom learning environment.

Table 6

<table>
<thead>
<tr>
<th>Title</th>
<th>Key aspects</th>
<th>Research focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified situated cognition theory</td>
<td>Learning occurs through (1) providing sufficient practice (J. R. Anderson, et al., 1996); (2) providing a number of contexts in which to learn (Bjork &amp; Richardson-Klavehn, 1989); (3) drawing attention to appropriate cues (J. R. Anderson, et al., 1996); and (4) using concrete examples to illustrate abstract concepts (J. R. Anderson, et al., 1996).</td>
<td>Learning</td>
</tr>
<tr>
<td>Sense of community</td>
<td>A supportive learning environment is built through (1) frequent positive interaction between students; (2) cooperative learning; (3) promoting dialog; and (4) autonomy of learners (Osterman, 2000).</td>
<td>Supportive</td>
</tr>
<tr>
<td>Model of moral education</td>
<td>An engaging learning environment is built through (1) shared meaning; (2) exploring own interests and capacities; (3) modelling, dialogue, and practice; (4) stories; and (5) engrossment and motivational shift (Noddings, 2002).</td>
<td>Engaging</td>
</tr>
</tbody>
</table>

Paper 4 (Stieler-Hunt & Jones, 2015d) goes on to match the key aspects of each learning theory / construct with components of our GUMC. Each component of the GUMC maps to one or more key aspects of these three learning theories / constructs as shown in Table 7. Therefore, we believe that our GUMC can be helpful for teachers to consider how to use IDGs to establish a supportive and engaging classroom learning environment.
Recommendation 16. Teachers and teacher advisors look beyond IDGs as content repositories and consider holistically how IDGs can be used in classrooms. Models such as the Game Uses Model for Classrooms can assist this process.

Recommendation 17. Teachers and teacher advisors use the Game Uses Model for Classrooms during their curriculum planning phase, to consider how IDGs can be best used to establish a supportive and engaging classroom learning environment.
### Table 7

*Demonstrating how each component of our GUMC maps to one or more key aspects of three learning theories / constructs*

<table>
<thead>
<tr>
<th>Learning theory / construct</th>
<th>Key aspects</th>
<th>GUMC components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified situated cognition theory</td>
<td>(1) Adequate practice</td>
<td>Practising: IDGs provide opportunities to practice learnings.</td>
</tr>
<tr>
<td></td>
<td>(2) Multiple contexts</td>
<td>Influencing: Additional out-of-game tasks provide new contexts to apply knowledge and skills.</td>
</tr>
<tr>
<td></td>
<td>(3) Cues for when knowledge / skill is applicable</td>
<td>Discovering affinity: Teacher can draw attention to cues during class discussions and game debriefs.</td>
</tr>
<tr>
<td></td>
<td>(4) Using concrete examples</td>
<td>Inspiring: Accompanying lesson plans can use concrete examples to illustrate abstract concepts.</td>
</tr>
<tr>
<td>Sense of community</td>
<td>(1) Positive interactions</td>
<td>Practising: Teacher purposefully chooses a student-game interaction model to facilitate positive student interactions and cooperative learning.</td>
</tr>
<tr>
<td></td>
<td>(2) Cooperative learning</td>
<td>Influencing: Out-of-game tasks may include classroom discussions.</td>
</tr>
<tr>
<td></td>
<td>(3) Promoting dialog</td>
<td>Discovering affinity: Extra in- and out-of-game tasks can provide autonomy.</td>
</tr>
<tr>
<td></td>
<td>(4) Autonomy</td>
<td>Inspiring: IDGs allow players to achieve in their own way.</td>
</tr>
<tr>
<td>Learning theory / construct</td>
<td>Key aspects</td>
<td>Practising</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Model of moral education</td>
<td>(1) Shared meaning</td>
<td>The act of playing the same IDG together builds shared meaning.</td>
</tr>
<tr>
<td></td>
<td>(2) Own interests and capacities</td>
<td>Most students play IDGs in their spare time, therefore many have a personal interest in them. Many IDGs provide opportunities to broaden students’ horizons and allow players to focus their attentions in areas that are of most interest to them thus building personal capacities.</td>
</tr>
<tr>
<td></td>
<td>Modelling, dialog, and practice</td>
<td>Modelling and dialog can be provided by non-player characters and practice is provided through game mechanics.</td>
</tr>
<tr>
<td></td>
<td>Stories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Engrossment and motivational shift</td>
<td>Engrossment and motivational shift occur naturally during game-play.</td>
</tr>
<tr>
<td>Learning theory / construct</td>
<td>GUMC components</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Practising</td>
<td></td>
</tr>
<tr>
<td>Key aspects</td>
<td>Influencing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discovering affinity</td>
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<td>Inspiring and motivation to out-of-game activities.</td>
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</table>

Colleen Stieler-Hunt  244
Limitations
A limitation of our research is that the GUMC and the Mentoring Model are based on data collected mostly from believer teachers. We recommend future research test these models with diverse teacher populations. We expect that the GUMC is more likely to be useful for teachers who take a broad view of curriculum, rather than those focussed narrowly on learning content. It is designed to be used by believer teachers or during the Mentoring Model’s collegial planning process under guidance from a knowledgeable mentor. We found that teachers who unsuccessfully tried to mentor teachers in their schools took different approaches to mentoring.

Designing IDGs for Classrooms
This final section of the chapter provides information on Orbit (Jones, et al., 2013), and presents recommendations for designing IDGs for classrooms based on our experiences creating an IDG for classroom use and our research into the use of digital games in classrooms. Firstly, we present an overview of the Orbit research process where we discuss the research underpinning the design of Orbit (Jones, et al., 2013). Secondly, in the “Overview of the Orbit game” section we aim to help the reader develop a basic understanding of the components of the game and how they work together. Thirdly, in the “Underpinning principles” section we explore the meaningful design decisions that went into designing Orbit (Jones, et al., 2013); the affordances offered in classroom environments for IDG designers, and how we used these in Orbit (Jones, et al., 2013); and the importance of evaluating IDGs for classroom use. Fourthly, in the “Addressing problematics” section we explore how problematic areas in the field of study can help guide the development of an IDG for classroom use. Finally, in the “Further considerations for designers of IDGs for classrooms” section we outline some design considerations that can help game designers support teachers to establish supportive and engaging classroom learning environments.

Overview of the Orbit research process
Whilst conducting research on the use of digital games in classrooms as outlined in the previous sections of this chapter, the author was lead investigator, and drove the design of an IDG for use in classrooms that was grounded in evidence-based research.
The game-play was designed by three game design researchers: Christian Jones, Ben Rolfe, and Colleen Stieler-Hunt. The author of this thesis drove the design process by planning, leading, documenting, and participating in more than 150 design sessions over several years. The design process was influenced by reviewing literature about the creative process and tools and techniques for designing digital learning games (e.g., Fullerton, 2008; Klopfer, Ostertweil, & Salen, 2009; Paavilainen et al., 2009). These reviews prompted the design team to use techniques such as writing a problem statement or stating a challenge at the start of a design session (Fullerton, 2008), playing creativity games (Paavilainen, et al., 2009), creating and playing physical prototypes (Fullerton, 2008; Paavilainen, et al., 2009), brainstorming (Fullerton, 2008), and looking for the play space in the topic (Klopfer, et al., 2009).

Design decisions were influenced by a comprehensive set of literature reviews on computer games and their use in learning; child sexual abuse prevention initiatives; developmental capabilities of the target age group; learning styles and gender preferences; delivery, support, and data around incidence of reporting of disclosures of abuse; and training, disclosures and reporting requirements of teachers. Design decisions were also influenced by discussions with academic and practitioner subject matter experts, focus groups and observations of game-play with school children, and interviews with teachers. The author of this thesis contributed to the literature reviews, initiated discussions with academic and practitioner subject matter experts, interviewed teachers, and planned and implemented focus groups and observations of game-play in schools to identify changes to the game’s design.

Focus groups relating to *Orbit*'s design and observations of school children playing *Orbit* were conducted by the author of this thesis. These focus groups and observations were conducted at two schools with children across our target age group (8-10 year olds). More than 20 sessions were conducted in total.

The first school contributed to the design of the game. The students participated in focus groups about the types of digital games they played at home and at school; their opinions on game characters, game assets, and art styles; and their reactions to aspects of game-play as they were developed. Each week the focus groups
observations were conducted with a different group of students. The groups ranged in size from three to six students. Ten, one-hour weekly sessions were held. The format varied depending on the content to be discussed at the time. Appendix 5 contains a sample focus group outline.

The second school provided feedback on the pre-release beta version of the game. We were looking for feedback on the playability of the game and the key learnings students were receiving from the game. This research was conducted on a weekly basis with one class of approximately 26 students. The game-play took place within a nine-week period. Focus groups with pairs of student were conducted following most students completing the game. Each week a small team of researchers, led by the author of this thesis, would supervise all students playing the game and offer assistance if required. A smaller sample of three students was selected for close observation whilst they played the game. Different students were selected each week in efforts to explore game responses of a variety of students and to consider each aspect of the game as the students progressed through it. A focus group with these smaller samples was conducted at the conclusion of each play-session. See Appendix 6 for a sample play-test outline.

The author of this thesis led the development of the Orbit (Jones, et al., 2013) learning objectives (see Appendix 3) by applying the knowledge gained from the literature reviews of computer games and child sexual abuse prevention initiatives alongside advice from subject matter experts. Bloom, Engelhart, Furst, Hill, and Krathwohl’s (1956) taxonomy of educational objectives was used to identify the types and levels of knowledge players needed to develop, and to make the learning objectives measurable. The author of this thesis assisted with the design of the evaluation of Orbit (Jones, et al., 2013) which is ongoing. Further, she applied the literature review findings to oversee and assist with writing the content for the teacher lesson plans (Stieler-Hunt, Scholes, et al., 2013) and the Orbit website (Stieler-Hunt, Jones, et al., 2013).

The author of this thesis also communicated design visions and decisions to the development team; conducted quality assurance testing; and conducted much of the
game’s technical administration including editing game elements, preparing game builds to distribute to schools, contributing to script writing, and organising recruitment and recording of voice actors.

The IDG, *Orbit* (Jones, et al., 2013), is designed for children between eight and ten years of age and aims to prevent child sexual abuse (CSA). *Orbit* (Jones, et al., 2013) takes a minimum of five hours to play. Progress is saved regularly so the player can stop and start as many times as they need to within the play period. We recommend *Orbit* (Jones, et al., 2013) be played over a minimum of five weeks. The evaluation of *Orbit* (Jones, et al., 2013) is ongoing. We are currently making modifications to the game for new audiences such as children living in Indigenous Communities in Australia and tablet users. *Orbit* (Jones, et al., 2013) is freely available from www.orbit.org.au. The *Orbit* (Jones, et al., 2013) program was developed with financial support from the Telstra Foundation, the Daniel Morcombe Foundation, and the Queensland Police Service. *Orbit* (Jones, et al., 2013) is the first IDG to target child sexual abuse (CSA) prevention (Scholes, et al., 2014).

*Overview of the Orbit game*

*Orbit* (Jones, et al., 2013) is an adventure game featuring a linear, interactive narrative (Stieler-Hunt, et al., 2014). There are five game chapters entitled (1) togetherness, (2) listening, (3) understanding, (4) belief, and (5) courage. The story centres on Sammy, a spaceship who has become emotionally distant from its concerned crew. The crew consists of six aliens: Epsilon the navigator, Delta the scientist, Zeta the janitor, Tau the robotics expert, Rho the security officer and Chi the chef (Stieler-Hunt, et al., 2014). The game begins with a child (the player character) being teleported aboard the spaceship. The player character is tasked with helping Sammy. Throughout *Orbit* (Jones, et al., 2013), the player character teleports aboard in-game likenesses of their own five trusted adults to help. Together, they learn that Sammy was abused by a crew member. The player character and their trusted adults help guide Sammy to reconnect with the other crew members and, eventually, Sammy discloses the abuse to each of them (Stieler-Hunt, et al., 2014).
Orbit has four mini-games that are integrated throughout the narrative: Robot Factory, "Need to Tell" Machine, Speak Up and Surveillance Footage (Stieler-Hunt, et al., 2014). Most of the mini-games have twelve levels, some of which are optional. There are more than 55 scenarios of CSA represented across the mini-games.

**Underpinning principles**

**MEANINGFUL DESIGN DECISIONS**

When creating an IDG there are a plethora of decisions to make ranging from the big picture to many small details. These decisions can relate to game mechanics; dialog; narrative; art; the player experience; and how learning, support, and engagement is to be fostered by each element. In Paper 6 (Scholes, et al., 2014) and Paper 7 (Stieler-Hunt, et al., 2014) we outline many of the key decisions and the research underpinning the design process of Orbit (Jones, et al., 2013). Our design decisions were underpinned by research, learning goals, support goals, and engagement goals. Many of these decisions are documented in the following sections.

**Recommendation 18.** Designers of IDGs for classrooms consider all game decisions carefully and base them on research, learning goals, support goals, and engagement goals.

**CLASSROOM AFFORDANCES**

Each environment in which an IDG is played has its own set of affordances. Most IDGs are created to be played in home environments and are built to make the most of the affordances of the home environment. For example, many IDGs are single-player games or offer a single-player mode where one person is responsible for making in-game decisions. Massively Multiplayer Online IDGs mostly offer multi-player modes over an internet connection rather than over local peer-to-peer networks. Notable exceptions to this are IDGs created for the Nintendo DS franchise of handheld consoles that allow for simple peer-to-peer networking so that those in close proximity can play together. However, even with the Nintendo DS console franchise, the limit of concurrent players is still sixteen, enough for a group of friends or siblings to play together but not enough to include a whole class of student players.
**Impacting Factor 18.** Most IDGs are designed to suit home environments not school environments.

In order to advance the use of IDGs in classrooms, IDGs need to be designed to the specific affordances offered by classroom environments. Affordances of typical schooling environments include being able to access a large group of similarly aged players who have some level of familiarity with each other through their individual perspectives on their shared educational experiences. Further, unlike some households, students at school may not have regular one-on-one access to gaming equipment such as games consoles, they may not have access to the latest technologies, and the technologies they can access may be oversubscribed (Stieler-Hunt & Jones, 2015b). Other affordances of the classroom environment include that students know that they are at school to learn and teachers are available to assist student learning. Further, the classroom is a social environment and schooling “success” depends not just on academic performance but also on social factors (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d).

Affordances of schooling environments should be used purposefully by game designers to create IDGs for classroom use. Table 8 presents some classroom affordances identified from our research with teachers, examples of how IDGs can make use of these affordances, and how we designed *Orbit* (Jones, et al., 2013) to use these affordances. We are not saying that all affordances should be used by all IDGs for classroom use or that these are the only affordances of classrooms that can be applied to IDGs.

**Recommendation 19.** Designers of IDGs for classrooms utilise the affordances school environments offer.

**Recommendation 20.** Designers of IDGs for classrooms consider how their IDG can build a positive social environment and consider providing opportunities for multiple players to interact with the IDG using the same item of gaming hardware. This is not to say that all IDGs should be multiplayer games, just that designers should consider whether any or all of their game can provide opportunities for multiple players to interact at the same item of gaming hardware.
**Recommendation 21.** Designers of IDGs for classrooms consult teachers who understand how to use IDGs effectively in classrooms throughout the design process.

**Recommendation 22.** Designers of IDGs for classrooms consider using older technologies that do not require the latest hardware to deliver their IDG.

**Evaluate**

Designers of IDGs for classrooms need to ensure that their IDGs support learning effectively. Therefore, evaluation is necessary. In Paper 5 (Scholes, et al., 2012) we identify three common types of evaluation: process, impact, and outcome (Lamont, 2009; Tomison & Poole, 2000). Process evaluation considers how the program is being delivered and identifies what is working well and what could be improved. Impact evaluation measures the effect the program has had on its participants according to its learning goals. Outcome evaluation assesses the long-term effectiveness of the program (Lamont, 2009). Many CSA prevention programs are not adequately evaluated (Sanderson, 2004; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014; Tomison & Poole, 2000). Therefore, the evaluation plan for *Orbit* (Jones, et al., 2013) began well before the IDG was complete. We used both process evaluation and impact evaluation with plans to follow up with an outcome evaluation. Our evaluation is ongoing. The outcome evaluation was designed to examine the effects of the IDG on its own and the IDG with the lesson plans (Stieler-Hunt, et al., 2014). We designed the evaluation using a combination of standardised instruments, quantitative and qualitative measures, and a control group (Stieler-Hunt, et al., 2014).

**Recommendation 23.** Designers and publishers of IDGs for classrooms conduct evaluation on how their IDG supports learning.
### Table 8

**Examples of how classroom affordances can be used by designers of IDGs for classrooms**

<table>
<thead>
<tr>
<th>Classroom affordance</th>
<th>How IDGs can use affordance</th>
<th>Examples of how affordance was used in Orbit</th>
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<tbody>
<tr>
<td>Access to a large group of similarly aged players who have some level of familiarity with each other through their individual perspectives on their shared educational experiences.</td>
<td>Include features that are designed to build rapport between students and build a positive social environment. Offer suggestions for how teachers can use the shared game experiences as a way to build rapport between students and build a positive social environment (Stieler-Hunt &amp; Jones, 2015a, 2015d).</td>
<td>Included game features that help build positive relationships, self-esteem, and healthy self-concept. Features included “I am Good At” boards that allowed players, classmates, and trusted adults to leave positive in-game messages for each other. Further, classmates could visit each other’s game spaces to see customisations and in-game achievements. These sharing features are available for all players but are not mandatory to use, thereby catering for players that like to have opportunities to share with other players. Those that do not wish to use these features can ignore them and still participate in the game fully. Orbit (Jones, et al., 2013) also required players to build a support network of five adults from their out-of-game life so that they would always have an adult to turn to if they experienced distress (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
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<td>Schooling “success” depends not just on academic performance but also on social factors.</td>
<td>Provide multi-player opportunities for students either by offering shared game-play at the one device or by having players take on different roles to cooperatively play a game together. For example, the IDG <em>Keep Talking and Nobody Explodes</em> (Steel Crate Games, 2015) requires pairs of players to solve puzzles to defuse a bomb. One player relays what they see on the computer screen and the other player consults a written “bomb-defusion” manual to guide the player operating the computer.</td>
<td>Two mini-games featured opportunities for side-by-side play (two players at one computer keyboard) in order to encourage discussion of issues relating to CSA (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). These mini-games have a focus on disclosure of CSA to a trusted adult and demonstrate the process of disclosure and overcoming barriers to disclosure such as guilt and fear.</td>
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<td>Access to older and slower gaming equipment and infrastructure.</td>
<td>IDGs created for schools do not necessarily require state-of-the-art graphics or the latest gaming technologies. This provides game designers the opportunity to focus</td>
<td>The graphic style of Orbit (Jones, et al., 2013) was 2D and cartoon-like. Using a 2D graphic style meant that the game could run well on older computers. The cartoon</td>
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<td>Classroom affordance</td>
<td>How IDGs can use affordance</td>
<td>Examples of how affordance was used in <em>Orbit</em></td>
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<td>Students know that they are at school to learn.</td>
<td>Students understand that they are expected to apply their knowledge acquired in school to assessment items. This may provide extra incentive to focus on certain aspects of the IDG and explore the IDG more deeply than they would normally. For example, students using the IDG <em>Endless Ocean</em> (Nintendo, 2007) were tasked with giving a presentation on a particular sea creature appearing in the IDG. This motivated students to seek out their particular sea creature appearing in the IDG and engage with all of the material the IDG provided about the sea creature (Stieler-Hunt &amp; Jones, 2015d).</td>
<td>We provided teacher planning materials for a student project to create and give a presentation on <em>Orbit</em> (Stieler-Hunt, 2013), to help students reflect on their learnings and assist teachers to identify and correct any mislearnings that may have occurred.</td>
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<td>Teachers are available to help further student learning.</td>
<td>IDGs may point to the beginning of an idea and the teacher can lead discussions to unpack ideas further. Alternatively, the IDG may present a concrete representation of an abstract concept that can be further explained in class. Teachers may also ask students to do extra game-related tasks (Stieler-Hunt &amp; Jones, 2015d). Designers of IDGs for classrooms can create lesson plans, discussion guides, and other classroom resources to assist. Expert teachers in the use of IDGs in the classroom.</td>
<td>We developed the <em>Orbit Teachers’ Guide</em> (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7) which included lesson plans for teachers to further unpack game concepts and address any mislearnings acquired (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Experienced teachers were involved in the design of <em>Orbit</em> (Stieler-Hunt, 2013) and its supporting materials, to help create a game suitable to be used in a classroom setting (Scholes, et al., 2014).</td>
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<tr>
<td>Classroom affordance</td>
<td>How IDGs can use affordance</td>
<td>Examples of how affordance was used in Orbit</td>
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<td>can provide useful input into the design process and help design integrated classroom learning experiences.</td>
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ADDRESSING PROBLEMATICS

Short form drill-and-practice learning games only address lower levels of learning and are not as engaging as games children would choose to play at home in their free time (Kirriemuir & McFarlane, 2004; Rice, 2007a; Takeuchi & Vaala, 2014). In their paper entitled Moving Learning Games Forward, Klopfer, et al. (2009) postulate that learning games should connect players with areas of learning that are fundamentally engaging, rather than try to disguise rote learning as fun because it is a game. They suggest several approaches for locating the topic areas best suited for games. They suggest designers try to find the “play space” (p. 27) in the topic and identify areas that experts in the field contemplate during their free time. Other academics suggest identifying the systems that are at-play within a topic and use that as the basis for a game (Brathwaite & Schreiber, 2009; Stieler-Hunt, et al., 2014). Our response to these arguments is to suggest that IDGs for classrooms explore the problematics associated with a field. By problematic we mean areas within the chosen topic that are “difficult to solve or decide” or “open to question or debate” (problematic, 2015).

**Recommendation 24.** Designers of IDGs for classrooms explore the problematics associated with the field of study.

Problematic areas within a chosen topic can be identified with help from subject matter experts (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Subject matter experts can also help game designers operationalise problematics. For example, in the creation of *Orbit* (Jones, et al., 2013), sexual abuse counsellors assisted us with using police reports of CSA incidents to develop scenarios for mini-games that were based in reality. Further, the counsellors also helped the design team develop age appropriate, message-focused vocabulary for mini-games (Stieler-Hunt, et al., 2014).

**Recommendation 25.** Designers of IDGs for classrooms engage subject matter experts to initially help identify problematics in the topic area and continue to consult them throughout the design process.

Problematic areas within a chosen topic can also be identified through exploring what is already known about the field and how existing training is delivered. For example, in Paper 5 (Scholes, et al., 2012) and Paper 6 (Scholes, et al., 2014) we
reviewed what is already known about CSA prevention programs. This included identifying key considerations for choosing a CSA prevention program (Scholes, et al., 2012) as well as attributes of effective CSA school prevention programs (Scholes, et al., 2014). In Paper 6 (Scholes, et al., 2014), we explained how we incorporated these into Orbit (Jones, et al., 2013).

**Recommendation 26.** Designers of IDGs for classrooms identify problematics by exploring what is already known on the topic and how training in the area is currently delivered (both game and non-game approaches).

Table 9 and Table 10 list some of the problematics we identified through working with subject matter experts and researching existing CSA prevention initiatives. These problematics and how Orbit addresses them have been documented throughout Paper 5 (Scholes, et al., 2012), Paper 6 (Scholes, et al., 2014), and Paper 7 (Stieler-Hunt, et al., 2014).

Given the sensitive nature of CSA prevention education, we identified a large number of problematics associated with developing Orbit (Jones, et al., 2013). Depending on the aims of the IDG, it may not be necessary to account for every problematic associated with the topic. However, designing an IDG based on one or more problematics can elicit more novel and engaging game-play experiences than short form drill-and-practice learning games. For example, the Robot Factory mini-game in Orbit (Jones, et al., 2013) requires players to assemble a robot. The player assembles all of the parts of the robot except the robot’s private body parts. Instead, the player allows the robot to affix their own private body parts and dress themselves in a private room. The game-play is more engaging for players than answering questions about private body parts. Further, the mini-game conveys more than just the concept of private parts. It conveys a sense of body ownership and personal privacy through allowing the robot to affix their own private body parts and dress themselves in a private room (Stieler-Hunt, et al., 2014).
Table 9

*How we addressed problematic content in Orbit*

<table>
<thead>
<tr>
<th>Problematic content for CSA prevention initiatives</th>
<th>How content was addressed in Orbit</th>
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<tr>
<td>Abuse perpetrated by a familiar adult – Sexual abuse usually involves a prolonged grooming process by someone known to the child and their family rather than a “stranger” (Sanderson, 2004; Scholes, et al., 2014; Scholes, et al., 2012; Smallbone &amp; Wortley, 2001; Stieler-Hunt, et al., 2014).</td>
<td>Orbit’s (Jones, et al., 2013) overarching narrative about Sammy gradually unfolds to reveal that Sammy was abused by a familiar adult who misused his authority using a grooming process (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
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<td>CSA usually involves an extended grooming process – Some prevention programs depict abuse as a sudden attack by a perpetrator (Bagley, Thurston, &amp; Tutty, 1996; Conte, Wolf, &amp; Smith, 1989; Sanderson, 2004; Scholes, et al., 2014; Scholes, et al., 2012). Grooming is a process where the child is desensitised to sexual touch over a period of time (Sanderson, 2004). Grooming is often accompanied by other perpetrator tactics such as offering bribes, making the child feel special, and ingratiating themselves with the child’s family (Stieler-Hunt, et al., 2014).</td>
<td>Most scenarios used within the scenario-based mini-games describe sexual abuse as being perpetrated by someone known to the child who misused adult authority and used a grooming process (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). The “Need to Tell” Machine mini-game helps players understand the tactics used by perpetrators of CSA, with each level dedicated to a different tactic (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
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<td>Sexual abuse may not involve touch – Some prevention programs do not recognise that CSA may not involve touch (e.g., exposing children to pornography, exhibitionism) (Sanderson, 2004; Scholes, et al., 2014; Scholes, et al., 2012).</td>
<td>Some scenarios in the Speak Up mini-game describe the confusing feelings that arise from sexual touch that feels pleasurable (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
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<td>Sexual abuse may feel pleasurable – Touch associated with sexual abuse may feel pleasurable and increase feelings of guilt and shame (Sanderson, 2004; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014).</td>
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### Discussion and Conclusions

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<tr>
<th>Problematic content for CSA prevention initiatives</th>
<th>How content was addressed in <em>Orbit</em></th>
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<tr>
<td>• opportunities for the player to reflect on the suitability of the adults in their support network (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). The player creates in-game likenesses of adults from their real life and these likenesses help the player character with game tasks (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). The <em>Speak Up</em> mini-game depicts adults in the role of protecting children (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
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#### Encouraging disclosure to safe adults

- **There are significant emotional barriers to disclosing CSA** (MacIntyre & Carr, 1999b; Putnam, 2003; Somer & Szwarcberg, 2001). There is a need to encourage purposeful disclosure to responsible and safe adults (Scholes, et al., 2014; Scholes, et al., 2012). Many programs do not discuss the disclosure process (MacIntyre & Carr, 1999b).

  - Each level in the *Speak Up* mini-game concludes by depicting a child character disclosing abuse to his/her trusted adults. Before the child character will disclose the abuse, however, the player must break down the emotional barriers to disclosing (Stieler-Hunt, et al., 2014).

  - The overarching narrative culminates in Sammy disclosing abuse to his/her trusted adults (Stieler-Hunt, et al., 2014).

  - We present some mini-game scenarios where the child discloses abuse to an adult who does not respond appropriately. In these cases the child proceeds to tell all of his/her trusted adults until someone does respond appropriately or the child contacts a helpline service.

  - An in-game utility called the “relationships board” encourages players to reflect on the quality of the relationships with their trusted adults (Stieler-Hunt, et al., 2014).

#### No fault

- **Those who have been abused often experience feelings of guilt and shame and self-blame associated with the abuse and long-term psychological harm can ensue** (Gaskill & Perry, 2012). Therefore, CSA prevention programs should emphasise that sexual abuse is never the fault of the child and include additional elements to improve children’s The guilt and shame felt by children who have been abused is expressed within the overarching narrative and the *Speak Up* mini-game levels (Stieler-Hunt, et al., 2014). *Orbit* (Jones, et al., 2013) consistently explains that abuse is never the fault of the child. Our subject matter experts provided guidance on the language to use.
Discussion and Conclusions

Problematic content for CSA prevention initiatives

- Self-esteem and resilience, as children with low self-esteem are more likely to be abused and believe it is their fault (Daro & Salmon-Cox, 1994; Sanderson, 2004; Scholes et al., 2014; Scholes et al., 2012; Stieler-Hunt et al., 2014).

How content was addressed in Orbit

- Orbit (Jones et al., 2013) includes other features that help to improve children’s self-esteem. These include in-game rewards that can be used to decorate the player’s rooms on the spaceship as well as an “I am good at” board where players, their classmates, and their trusted adults can leave messages describing what the player is good at (Scholes et al., 2014; Stieler-Hunt et al., 2014).

Table 10

<table>
<thead>
<tr>
<th>Problems addressed with delivery of CSA prevention in Orbit</th>
<th>How problematics were addressed in Orbit</th>
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<tr>
<td><strong>Catering for segments of our target audience</strong> - Many prevention programs are criticised for not catering well for boys (Asdigian &amp; Finkelhor, 1995; Finkelhor, Asdigian, &amp; Dziuba-Leatherman, 1995; Scholes et al., 2014; Scholes et al., 2012; Stieler-Hunt et al., 2014), whilst IDGs have been criticised for alienating women and girls (Dietz, 1998). Other important segments of our target audience include children with disabilities (Briggs &amp; McVeity, 2003; Sanderson, 2004; Scholes et al., 2014; Scholes et al., 2012; Stieler-Hunt et al., 2014) and children that have experienced or are experiencing CSA (Currier &amp; Wurtele, 1996; Scholes et al., 2012; Stieler-Hunt et al., 2014).</td>
<td>Orbit (Jones et al., 2013) is an adventure game, a genre which is engaging to both boys and girls (Brand, Borchard, &amp; Holmes, 2008; Scholes et al., 2014; Stieler-Hunt et al., 2014). It is set in a fantastical setting to appeal to players (Gibson, Aldrich, &amp; Prensky, 2007; Hedden, 1998; Malone, 1980) and to introduce concepts of CSA in a less threatening way (Scholes et al., 2014; Stieler-Hunt et al., 2014). We provided character and game-world customisations in the form of in-game rewards (Scholes et al., 2014; Stieler-Hunt et al., 2014) to give players agency (Poremba, 2003) and motivate players (Dondlinger, 2007). Further, the character Sammy, who is the focus of the narrative, is the same gender as the player character to help the player identify with Sammy (Stieler-Hunt et al., 2014). The mini-games feature sexual abuse scenarios; the children depicted in the scenarios are representative of our target audience (Stieler-Hunt et al., 2014).</td>
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</table>

Colleen Stieler-Hunt
## Problematics associated with delivery of CSA prevention

**Encouraging active participation** – Programs actively involving children are more effective than those using passive methods (Davis & Gidycz, 2000; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014).

**Explicit training** – Programs are more effective if they offer ways for children to rehearse appropriate behaviours including practising and planning for disclosure (Reppucci, 1989; Rispens, Aleman, & Goudena, 1997; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014).

**Standardised training** – More effective programs have standardised training materials and are provided by trained instructors (MacIntyre & Carr, 1999b; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014).

**Integrated into school curriculum** – More effective programs are integrated into school curriculum (Berrick & Barth, 1992; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014).

**Repeat presentations and follow up training** – Longer programs are more effective than one-off presentations (Davis & Gidycz, 2000; MacIntyre & Carr, 1999b; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014; Sandy K Wurtele, Hughes, & Owens, 1998).

### How problematics were addressed in Orbit

**Active participation** is required to progress the game. *Orbit* (Jones, et al., 2013) aims to use immersion, excitement, reward, and challenge as motivation for playing (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).

**Game experiences** provide explicit training in identifying situations of abuse and overcoming barriers to telling trusted adults (Scholes, et al., 2014). Further, the game can inspire discussions and role-plays led by a parent or teacher (Stieler-Hunt & Jones, 2015d), some of which are outlined in the *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7) and the *Orbit website* (Stieler-Hunt, Jones, et al., 2013).

The *Orbit* (Jones, et al., 2013) game provides a standard experience for players (Scholes, et al., 2014). The *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7) and *Orbit website* (Stieler-Hunt, Jones, et al., 2013) also provides standardised teacher training materials (Scholes, et al., 2014). No synchronous teacher training is offered, however this would be desirable if funding was available.

*IDGs can be integrated flexibly into the curriculum because they can be used in multiple modes. For example, students can play at the same time or separately, and can play in their free time at school or home (Stieler-Hunt & Jones, 2015d). *Orbit* (Jones, et al., 2013) is designed to be implemented by classroom teachers with lesson plans and discussion guides provided as part of the *Orbit Teachers Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7). Further, mini-game levels are interspersed throughout the game thus providing repetition of the key learnings occurring in each mini-game (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).*
**Discussion and Conclusions**

<table>
<thead>
<tr>
<th>Problematics associated with delivery of CSA prevention</th>
<th>How problematics were addressed in <em>Orbit</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Involve parents and teachers</strong> – More effective programs feature parent involvement and teacher education (MacIntyre &amp; Carr, 1999b; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014; Sandy K Wurtele, et al., 1998).</td>
<td>Throughout <em>Orbit</em> (Jones, et al., 2013), children build their adult support network consisting of five adults from different aspects of their life (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). At least one adult must be someone in their family and at least one must be someone from their school. These adults receive a login code and can leave messages on the child’s “I am good at” board (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Students’ game progress is saved to the internet so children can also play the game at home. There are mini-games designed for parents to play alongside their children.</td>
</tr>
<tr>
<td><strong>Evaluation</strong> – Many programs are not evaluated rigorously (Sanderson, 2004; Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014).</td>
<td><em>Orbit</em> (Jones, et al., 2013) is undergoing a rigorous evaluation involving standardised measures and control groups for children (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Parents and teachers are also involved in the evaluation (see “Evaluate” subsection of “Underpinning principles” section).</td>
</tr>
<tr>
<td><strong>Knowledge decay</strong> – Decay in knowledge occurs over time (Finkelhor &amp; Strapko, 1992; Scholes, et al., 2012).</td>
<td>Knowledge is built gradually over the 5-hour plus play-time of the game. The player can also revisit the game at any time of their choosing. <em>Orbit</em> (Jones, et al., 2013) can be played at home and at school. The player can choose to replay an element of the game they have already completed (mini-games and overarching story). We also encourage players to replay the mini-games through providing extra optional levels that provide the player with in-game rewards (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
</tr>
<tr>
<td><strong>Negative side effects</strong> – Programs may increase fear and anxiety in children (Finkelhor &amp; Dziuba-Leatherman, 1995; Scholes, et al., 2012).</td>
<td>Some children experience fear and anxiety as a result of prevention programs, although of those that do, their caregivers have indicated that the program was still useful (Finkelhor &amp; Dziuba-Leatherman, 1995; Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Our evaluation monitors fear and anxiety levels in children through semi-structured interviews with teachers and questionnaires for parents (adapted from Hébert, Lavoie, Piche’, &amp; Poitras, 2001; MacIntyre &amp; Carr, 1999a; Sandy K. Wurtele, Kast, &amp; Melzer, 1992), which include statements such as “There have been increases in my child’s level of anxiety since the programme” that are answered using a Likert scale.</td>
</tr>
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</table>
## Discussion and Conclusions

<table>
<thead>
<tr>
<th>Problematics associated with delivery of CSA prevention</th>
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<tbody>
<tr>
<td>How problematics were addressed in <em>Orbit</em> ranging from strongly agree to strongly disagree. During the design process we made edits based on potential fear/anxiety highlighted by our subject matter experts, prior to children playing the game. We also observed game-play and conducted semi-structured interviews with the students who played <em>Orbit</em> (Jones, et al., 2013) to gauge game-play difficulties, conceptual difficulties, and fear and anxiety levels. We did not observe fear or anxiety in children playing the game and did not require changes to the game.</td>
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</table>

### Positive and supportive program

*Scholes, et al., 2014; Scholes, et al., 2012; Stieler-Hunt, et al., 2014* – It can be challenging to present CSA prevention in an empowering way. However, children with low self-esteem are more likely to be abused (Daro & Salmon-Cox, 1994; Sanderson, 2004). Therefore, CSA prevention programs should also aim to improve children’s self-esteem and resilience.

*Orbit* (Jones, et al., 2013) has many positive and supportive features including: building a support network of adults whose in-game representations help the player character; providing “I am good at” boards for players; and providing in-game achievement rewards that players use to decorate customisable spaces (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). In addition, the game has been designed to provide challenges for children and be a game that all children can complete. The game rewards players for completing in-game quests within each chapter and mini-game level. Feelings of achievement and accomplishment can increase children’s self-esteem and resilience. As the child progresses in the game, they observe their achievements through helping Sammy reconnect with the crew (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).
Further considerations for designers of IDGs for classrooms

In this section we outline further considerations for the design of IDGs for classrooms that arise from our responses to the problematics associated with the delivery and content for *Orbit* (Jones, et al., 2013). There is overlap between some of the considerations and we do not claim them to be exhaustive. However, we believe they are reasonably universal in that they are applicable to the design of many IDGs for use in classrooms. Table 11 provides a summary of these considerations and explains how this consideration can help build a supportive and engaging learning environment.

<table>
<thead>
<tr>
<th>Consideration</th>
<th>How consideration can build a supportive and engaging learning environment</th>
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<tbody>
<tr>
<td>Blend the IDG with the students’ out-of-game world (Stieler-Hunt, et al., 2014).</td>
<td>Increases opportunities to practice and apply learnings within multiple contexts and further develops understandings of the appropriate contexts in which to apply the knowledge and skills. These are all key aspects of modified situated cognition theory (J. R. Anderson, et al., 1996; Bjork &amp; Richardson-Klavehn, 1989) as outlined in Paper 4 (Stieler-Hunt &amp; Jones, 2015d) and can facilitate building a productive learning environment.</td>
</tr>
<tr>
<td>Resources for teachers and parents (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
<td>Helps teachers and parents purposefully facilitate dialog with children about concepts raised in the IDG. These resources may also help teachers use the IDG to increase positive interactions between students. These are characteristics of developing a sense of community (Osterman, 2000; Stieler-Hunt &amp; Jones, 2015d) which helps build a supportive environment.</td>
</tr>
<tr>
<td>Design for inclusivity (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).</td>
<td>Provides opportunities for each student to explore their own interests and capacities, participate fully in the game-play and narrative of the IDG, co-develop shared meanings with their peers, and experience the engrossment and motivational shift that occurs when one is truly engaging in their learning environment (Noddings, 2002; Stieler-Hunt &amp; Jones, 2015d).</td>
</tr>
<tr>
<td>Provide opportunities for players to make the game-world their own and share that world with others (Stieler-Hunt, et al., 2014).</td>
<td>Allows players to explore their own interests and capacities and build shared meaning which are characteristics of an engaging learning environment (Noddings, 2002).</td>
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BLEND THE IDG AND THE STUDENTS’ OUT-OF-GAME WORLDS

Blending IDGs with students’ out-of-game worlds can enhance learning by increasing opportunities to practice and apply learnings within multiple contexts, while developing their understanding of when it is applicable to use particular knowledge and skills. These are all key aspects of modified situated cognition theory (J. R. Anderson, et al., 1996; Bjork & Richardson-Klavehn, 1989), as outlined in Paper 4 (Stieler-Hunt & Jones, 2015d). The ultimate aim of most IDGs designed to be used in the classroom is for students to be able to apply their game learnings to one or more out-of-game contexts. Game designers can facilitate this by providing opportunities to bring the out-of-game world into the IDG and the IDG into the out-of-game world (Klopfer, et al., 2009). *Orbit* (Jones, et al., 2013) provided these opportunities by representing adults from the player’s life inside the game to help children identify “safe” adults from within their home, school, and social circles; engaging players’ nominated adults in the game-play by providing them with a game log-in and information about *Orbit* (Jones, et al., 2013); bringing game learnings from *Orbit* (Jones, et al., 2013) into the child’s out-of-game world via lesson plans that help teachers facilitate discussions about the subject matter and issues raised within the game; providing in-game opportunities for the player’s classmates and nominated adults to write positive messages to the student; and providing opportunities for side-by-side play within mini-games (Scholes, et al., 2014; Stieler-Hunt, et al., 2014).

**Recommendation 27.** Designers of IDGs for classrooms bring the player’s out-of-game world into the IDG and the IDG into the player’s out-of-game world, to help players transfer their learnings to out-of-game contexts.

RESOURCES FOR TEACHERS AND CAREGIVERS

Providing access to resources that can be used by teachers and parents alongside the IDG helps build a supportive environment around the IDG. These resources can help teachers and parents purposefully facilitate dialog about the IDG and use the IDG to increase positive interactions between students, which are characteristics of building a sense of community (Osterman, 2000). These resources may include discussion guides, role plays, projects, or class organisation tips.
Teacher resources provided by the game designer can help teachers with the sometimes difficult task of establishing links between IDGs and curricula (Stieler-Hunt & Jones, 2015a, 2015b), and can help transfer the learnings from the IDG to real life activities (Klopfer, et al., 2009; Stieler-Hunt & Jones, 2015d). The GUMC as outlined in Paper 4 (Stieler-Hunt & Jones, 2015d) can help game designers explore possible classroom uses for their IDG.

Teachers may have varying purposes (Stieler-Hunt & Jones, 2015a, 2015b, 2015c, 2015d) for using the IDG in the classroom, some of which the game designers may never consider. Therefore, game designers and publishers can consider providing an online space for teachers to share their own uses of the IDG.

Since many teachers do not understand the potential of using IDGs in classrooms (Stieler-Hunt & Jones, 2015b), IDG designers and publishers may provide links to resources that help unpack the value of using IDGs in the classroom more generally (e.g., Maryland Public Television, 2010b).

Given that the use of IDGs for student learning is not yet considered mainstream, publishers should consider how to best promote their IDG, associated resources, and learning outcomes to teachers. Paper 1 (Stieler-Hunt & Jones, 2015a) and Paper 3 (Stieler-Hunt & Jones, 2015c) suggest that information about integrating IDGs into curricula needs to be provided in forums that everyday teachers use, as well as the specialty forums that educators who are likely to become games-in-learning mentors would use.

*Orbit* (Jones, et al., 2013) included a number of resources for teachers and families that were delivered by its website (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Providing resources for teachers was seen as doubly important because the teacher’s role is critical to the success of CSA prevention initiatives (MacIntyre & Carr, 1999b; Sanderson, 2004; Scholes, et al., 2012; Sandy K Wurtele, 2009) and also to the success of using IDGs in the classroom (Beavis, et al., 2014; Stieler-Hunt & Jones, 2015d). This included the *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7), information on how to receive a disclosure of child sexual abuse, a promotional video, an overview of *Orbit’s* (Jones, et al., 2013) narrative, an overview of
the key concepts addressed in *Orbit* (Jones, et al., 2013), suggested conversation starters for parents, and take-home information sheets for trusted adults (Stieler-Hunt, Jones, et al., 2013).

We involved teachers and subject matter experts in CSA prevention in the design of the *Orbit Teachers’ Guide* (Stieler-Hunt, Scholes, et al., 2013) (see Appendix 7) and the website content (Stieler-Hunt, Jones, et al., 2013). We deemed it important to have teachers contribute to the development of materials to be used in classrooms to ensure they were useful and usable for classrooms (Stieler-Hunt, et al., 2014). We also provided an overview of the game’s narrative, the key learnings, the mini-games, and the technical requirements of the game, so teachers and caregivers could learn as much about *Orbit* (Jones, et al., 2013) as they needed, prior to playing and introducing it (Stieler-Hunt, Jones, et al., 2013). We believe this is especially important for a game such as this, which deals with sensitive content.

**Recommendation 28.** Designers and publishers of IDGs for classrooms provide resources for teachers and caregivers in how to use the IDG.

**Recommendation 29.** Designers and publishers of IDGs for classrooms involve teachers and subject matter experts in the design of resources for classrooms and parents.

**Recommendation 30.** Designers and publishers of IDGs for classrooms provide an online space for teachers to share information about how they are using the IDG.

**Recommendation 31.** Designers and publishers of IDGs for classrooms consider providing resources that outline a rationale for using IDGs in learning for teachers and caregivers.

**Recommendation 32.** Designers and publishers of IDGs for classrooms promote learning outcomes of their IDGs to teachers via mainstream channels likely to be frequented by teachers and games-in-learning mentors in schools.

**DESIGN FOR INCLUSIVITY**

IDGs are criticised for not being inclusive (Archer, 2016; Friedberg, 2015). IDGs developed for the classroom should be inclusive of their entire target audience, which
will usually include children of diverse genders, cultural backgrounds, and abilities (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). By being inclusive we mean avoiding game elements that may exclude a particular group of people. Ensuring IDGs are inclusive of its entire target audience provides opportunities for all students to explore their own interests and capacities, participate fully in the game-play and narrative of the IDG, co-develop shared meanings with their cohort, and experience the engrossment and motivational shift that occurs when one is truly engaging in their learning environment (Noddings, 2002).

We endeavoured to make *Orbit* (Jones, et al., 2013) inclusive by allowing the player to create their own player characters using an avatar generator which enabled selection of gender, skin colour, facial features, and a wheelchair disability (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). *Orbit’s* narrative focuses on a child-like, non-human character, Sammy, whose gender is the same as the gender of the player character (Stieler-Hunt, et al., 2014). We purposefully created non-player characters as alien lifeforms and, although they have some human characteristics, they do not resemble any particular known cultural group. We did this so that players would not attribute perpetrator characteristics to a particular cultural group (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Five of the ship’s alien crew form Sammy’s trusted adult network, and they are composed of three women and two men of varying ages who fulfil different roles on the spaceship. All of these crew play a part in being “heroes” in *Orbit* (Jones, et al., 2013) by helping to keep Sammy safe from further abuse. We also provided text and voice for all game dialog so as to not disadvantage players with low literacy levels (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). Players use an avatar generator to create likenesses of their own support network of adults (Scholes, et al., 2014; Stieler-Hunt, et al., 2014). We provided six different voices for players to choose from for their support network adults. The mini-games that feature abuse scenarios have equal representation of boys and girls and some scenarios feature children with disabilities (Stieler-Hunt, et al., 2014). The majority of the perpetrators of CSA in the scenarios are male as this is in keeping with research (Finkelhor, 1999), however there are several scenarios with female perpetrators (Stieler-Hunt, et al., 2014). Men and
women are both represented as part of children’s support networks in the mini-game scenarios (Stieler-Hunt, et al., 2014).

We conducted focus groups with primary school students to ascertain the appeal of the in-game rewards and the game characters for all segments of our target audience (Stieler-Hunt, et al., 2014). During observations of the class playing Orbit (Jones, et al., 2013), we discovered that many mini-games were too difficult for some students. Some were too difficult in terms of their skill level or manual dexterity and others in terms of conceptual understandings. We modified the difficulty levels of the mini-games accordingly. However, the changes were made after we had finished working with the observation class, so we were unable to directly observe a range of children playing the modified mini-games. We received teacher feedback that all students were able to play the mini-games and that none were too difficult or too easy. In hindsight, it may have been better to allow players to choose their own level of difficulty, or let the game identify a level of difficulty appropriate for each player. It is important to ensure an adequate level of challenge for each player, because if the level of challenge is too great or too little, the player will not be as engaged with the IDG (Salen & Zimmerman, 2003).

**Recommendation 33.** Designers of IDGs for classrooms ensure their IDG is inclusive of all students in their target audience.

**OPPORTUNITIES TO MAKE THE GAME WORLD YOUR OWN AND SHARE THAT WORLD WITH OTHERS**

Part of what makes IDGs an effective way to learn is the engagement they provide (Beavis, et al., 2014; Gee, 2008; Klopfer, et al., 2009). One way IDGs facilitate engagement is that learners feel their decisions have a meaningful impact on the game environment (Gee, 2008; Kirriemuir & McFarlane, 2004). Opportunities for customisation can help the learner engage with the game environment (Stieler-Hunt, et al., 2014). Providing players opportunities to share their game world customisations with other players helps them explore their own interests and capacities, and build shared meaning, which are characteristics of an engaging learning environment (Noddings, 2002).
In *Orbit* we provided opportunities for players to customise sections of the space ship, and customise their player and trusted adult avatars. They also had their own in-game “boards” where they write and receive messages. Players were able to visit their classmates’ spaceships to see how they had customised their game-world (Stieler-Hunt, et al., 2014).

**Recommendation 34.** Designers of IDGs for classrooms consider providing opportunities for players to make the game world their own.

**Recommendation 35.** Designers of IDGs for classrooms consider providing opportunities for players to showcase elements of their game world to others. Providing opportunities for players to showcase their work does not mean that the IDG will require all players to showcase their work, just that this will be an optional feature.

**Final Words**

The only digital games many students have used in classrooms are short form drill-and-practice learning games. However, for many students their out-of-school world is filled with more complex digital games involving players in deep exploration, participating in activities that vary greatly from didactic instruction. Many teachers do not believe these more complex digital games have a place in classrooms. Our research focussed on teachers who believe that more complex digital games which we labelled *immersive digital games* (IDGs), do belong in the classroom.

Researchers and many schooling systems recognise the value of using IDGs for student learning, however this understanding has not filtered through to the majority of teachers. Therefore, innovation with using IDGs in the classroom is reliant on a few believer teachers, many of whom experience alienation from their nearby colleagues because of their work.

If IDGs are to take their place alongside other technology-mediated learning environments (such as learning management systems) in the educational setting, then the stigma of using IDGs in the curriculum needs to be redressed. Without the buy-in and involvement of teachers, the potential of IDGs to build supportive and engaging
classroom learning environments will never be realised. We recommend instituting mentoring programs that combine a bottom-up and top-down approach, and providing information to mainstream teachers about the value IDGs can provide the curriculum that go beyond the learning of content and extend to creating a supportive and engaging learning environment. We also advocate for the design and development of more IDGs crafted specifically for the affordances of classrooms that are inclusive of all students, which teachers can use to create supportive and engaging classroom learning environments.

For Further Research

Our research found that it was reasonably commonplace for teachers using IDGs in classrooms to feel that their teaching colleagues did not share their interests in using IDGs in the classroom. In some cases, it appeared that there may have been a general apathy about games and in others colleagues appeared to be adamantly resistant towards the use of games in classrooms. Since our research focussed only on teachers who used digital games in their classrooms, further research is warranted around the degrees of resistance educators have towards the use of IDGs. It is possible that other teachers may have wanted to participate in this study but had not been able to use games in their teaching due to resistance from their teaching colleagues. Is it simply that games are not a priority or that there is something deeper at-play?
References for Discussion and Conclusions


Discussion and Conclusions


Discussion and Conclusions


Appendix 1.

Impacting Factors and Recommendations

Colleen Stieler-Hunt

List of impacting factors and recommendations appearing in the Discussion and Conclusions chapter.

RQ1. What is impacting the use of digital game-play in primary and secondary school classrooms?

Impacting Factor 1. Schools are not receiving maximum benefit from the use of digital game-play in classrooms because the short form drill-and-practice learning games most commonly used only provide opportunities for low-level learning and are not as engaging as immersive digital games (IDGs).

Impacting Factor 2. Most IDGs are not created with classroom use in mind.

Impacting Factor 3. Play is undervalued as a method of learning, especially as people age, therefore IDGs are seen by some teachers as “time-wasters”.

Impacting Factor 4. There is division between teachers who are overwhelmingly positive about the potential for IDGs to be used for student learning in classrooms (believer teachers) and those who are not (non-believing colleagues).

Impacting Factor 5. Believer teachers are more likely to use IDGs than their non-believing colleagues.

Impacting Factor 6. The conditions for becoming a believer teacher are multi-faceted and relate to personal experiences with IDGs, experiencing enjoyment and success with using IDGs in the classroom, being a technology advocate or enthusiast, being professionally interested in using IDGs in the classroom, and being invited by someone in perceived authority to use IDGs in the classroom.
**Impacting Factor 7.** Many teachers who want to use IDGs in the classroom either operate surreptitiously or alter/minimise their use of IDGs. Whilst this is the case, the use of IDGs will not reach its full potential in schools.

**Impacting Factor 8.** Teachers who do not use IDGs in their classrooms may resent teachers who are using IDGs because the non IDG-using teachers do not view the classroom as an appropriate place for IDGs and their students complain that they are unable to use IDGs during class time.

**Impacting Factor 9.** At best, *lone believers* are having very little impact on their nearby colleagues because they are operating in a silo. At worst, *lone believers* are having an adverse impact on the advancement of IDGs in their schools.

**Impacting Factor 10.** Researchers agree that there is insufficient teacher professional development for using IDGs in the classroom.

**Impacting Factor 11.** Although support from the school administration team is desirable, personal approaches to games-based learning professional development are more likely to be effective than top-down approaches.

**Impacting Factor 12.** Appropriate mentoring can be an effective way to help cohorts of teachers experience success with using IDGs in the curriculum and view their use in education positively.

**Impacting Factor 13.** Very few schools adopt a mentoring approach to help teachers use IDGs in the curriculum.

**Impacting Factor 14.** Teachers’ attitudes and beliefs about IDGs impact on whether the use of IDGs in classrooms will become more widespread.

**Impacting Factor 15.** Many teachers undervalue their role in the adoption and use of IDGs in classrooms.

**Impacting Factor 16.** Teachers play a significant role in optimising students’ learning from IDGs.

**Impacting Factor 17.** Teachers’ attitudes and beliefs about using IDGs in the classroom influence parents’ attitudes and beliefs about using IDGs in the classroom.
Impacting Factor 18. Most IDGs are designed to suit home environments not school environments.

RQ2. How can actors in the creation and application of digital games advance the use of digital game-play in the classroom to establish supportive and engaging classroom learning environments?

Recommendation 1. Learning game designers, learning game publishers, schooling systems, teacher advisors, and teachers focus their efforts on creating and using IDGs for classrooms rather than short form drill-and-practice learning games.

Recommendation 2. Teachers and teacher advisors take a holistic view of curricula that includes but also goes beyond state-mandated curricula when considering how best to use IDGs in classrooms.

Recommendation 3. Designers of IDGs for classrooms take a holistic view of curricula during their game design process that includes but also goes beyond state-mandated curricula.

Recommendation 4. Designers of IDGs and publishers of IDGs create more IDGs with classroom use in mind.

Recommendation 5. Schooling systems disseminate effective use of IDGs through the channels they use to inform and influence everyday teachers’ curriculum planning.

Recommendation 6. Schooling systems, school administration teams, and teacher advisors promote to teachers the value of play as a way to learn throughout all stages of life.

Recommendation 7. School administration teams identify teachers who are using IDGs meaningfully in the classroom, provide assistance as required, and show interest in and endorse their work (see Recommendation 11 for an approach to help non-believing colleagues become more open to using IDGs).

Recommendation 8. School administration teams and teacher advisors encourage teachers to become believers in using IDGs in the classroom through staff discussions about the value of IDGs in the home and the potential value for use in schools,
Appendix 2

providing support and encouragement for teachers who want to use IDGs in their classrooms (see Recommendation 7), encouraging the use of educational technologies in classrooms, and presenting teachers with opportunities to use IDGs in the classroom.

**Recommendation 9.** Researchers investigating teachers’ acceptance of IDGs for use in the classroom explore teachers’ experiences with IDGs as parents, as well as their personal experiences with IDGs.

**Recommendation 10.** School administration staff and teacher advisors work towards creating an operating culture that views the use of IDGs in classrooms as acceptable.

**Recommendation 11.** School administration staff sanction and provide the necessary time, training, and resources for *lone believers* who are using IDGs effectively in the classroom to become effective mentors to nearby colleagues.

**Recommendation 12.** School administration teams identify suitable *believer* teachers to become mentors and adopt our Mentoring Model.

**Recommendation 13.** Schooling systems, school administration teams, and teacher advisors present to teachers varying examples of how IDGs can be used effectively in the classroom.

**Recommendation 14.** Schooling systems, school administration teams, and teacher advisors provide professional development for teachers on how to use IDGs in the classroom that focus on the teacher’s role and treat IDGs as more than content repositories.

**Recommendation 15.** Designers and publishers of IDGs for classrooms provide training and guidance for teachers in how to effectively use the IDG in the classroom (e.g., teachers’ guides, discussion guides, and sample lesson plans).

**Recommendation 16.** Teachers and teacher advisors look beyond IDGs as content repositories and consider holistically how IDGs can be used in classrooms. Models such as the Game Uses Model for Classrooms can assist this process.
**Recommendation 17.** Teachers and teacher advisors use the Game Uses Model for Classrooms during their curriculum planning phase, to consider how IDGs can be best used to establish a supportive and engaging classroom learning environment.

**Recommendation 18.** Designers of IDGs for classrooms consider all game decisions carefully and base them on research, learning goals, support goals, and engagement goals.

**Recommendation 19.** Designers of IDGs for classrooms utilise the affordances school environments offer.

**Recommendation 20.** Designers of IDGs for classrooms consider how their IDG can build a positive social environment and consider providing opportunities for multiple players to interact with the IDG using the same item of gaming hardware. This is not to say that all IDGs should be multiplayer games, just that designers should consider whether any or all of their game can provide opportunities for multiple players to interact at the same item of gaming hardware.

**Recommendation 21.** Designers of IDGs for classrooms consult teachers who understand how to use IDGs effectively in classrooms throughout the design process.

**Recommendation 22.** Designers of IDGs for classrooms consider using older Technologies that do not require the latest hardware to deliver their IDG.

**Recommendation 23.** Designers and publishers of IDGs for classrooms conduct evaluation on how their IDG supports learning.

**Recommendation 24.** Designers of IDGs for classrooms explore the problematics associated with the field of study.

**Recommendation 25.** Designers of IDGs for classrooms engage subject matter experts to initially help identify problematics in the topic area and continue to consult them throughout the design process.

**Recommendation 26.** Designers of IDGs for classrooms identify problematics by exploring what is already known on the topic and how training in the area is currently delivered (both game and non-game approaches).
**Recommendation 27.** Designers of IDGs for classrooms bring the player’s out-of-game world into the IDG and the IDG into the player’s out-of-game world, to help players transfer their learnings to out-of-game contexts.

**Recommendation 28.** Designers and publishers of IDGs for classrooms provide resources for teachers and caregivers in how to use the IDG.

**Recommendation 29.** Designers and publishers of IDGs for classrooms involve teachers and subject matter experts in the design of resources for classrooms and parents.

**Recommendation 30.** Designers and publishers of IDGs for classrooms provide an online space for teachers to share information about how they are using the IDG.

**Recommendation 31.** Designers and publishers of IDGs for classrooms consider providing resources that outline a rationale for using IDGs in learning for teachers and caregivers.

**Recommendation 32.** Designers and publishers of IDGs for classrooms promote learning outcomes of their IDGs to teachers via mainstream channels likely to be frequented by teachers and games-in-learning mentors in schools.

**Recommendation 33.** Designers of IDGs for classrooms ensure their IDG is inclusive of all students in their target audience.

**Recommendation 34.** Designers of IDGs for classrooms consider providing opportunities for players to make the game world their own.

**Recommendation 35.** Designers of IDGs for classrooms consider providing opportunities for players to showcase elements of their game world to others. Providing opportunities for players to showcase their work does not mean that the IDG will require all players to showcase their work, just that this will be an optional feature.
Appendix 2.

Paper. Teachers’ Beliefs About the Possibilities and Limitations of Digital Games in Classrooms

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Published 2014 in E-Learning and Digital Media 11(6). doi: http://dx.doi.org/10.2304/elea.2014.11.6.569

Notes
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Teachers’ Beliefs about the Possibilities and Limitations of Digital Games in Classrooms

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ABSTRACT Teachers’ beliefs about what it is (or is not) possible to achieve with digital games in educational contexts will inevitably influence the decisions that they make about how, when, and for what specific purposes they will bring these games into their classrooms. They play a crucial role in both shaping and responding to the complex contextual factors which influence how games are understood and experienced in educational settings. Throughout this article the authors draw upon data collected for a large-scale, mixed-methods research project focusing on literacy, learning and teaching with digital games in Australian classrooms, to focus explicitly on the attitudes, understandings and expectations held about digital games by diverse teachers at the beginning of the project. They seek to identify the beliefs about games that motivated teachers’ participation in a digital games research project while focusing, as well, on concerns that teachers express about risks or limitations of such a project. The authors’ aim is to develop a detailed picture of the mindsets that teachers bring to games-based learning environments, and the relevance of these mindsets to broader debates about the relationship between games, learning and school.

Introduction

The immense popularity of games with wide and diverse groups of people has supported the development of a burgeoning industry focused on developing ‘serious’ games and associated learning materials for use within schools (Davidson, 2008), and the adaptation or incorporation of commercial off-the-shelf and other games for classroom learning purposes. There is considerable interest in the potential of games to support learning, with a number of studies (e.g. McFarlane et al, 2002; Francis, 2006; Mehotra et al, 2012) documenting the use of games in the classroom and describing the underlying learning principles and pedagogies entailed. Such studies are exemplary. However, as reviews of the field of games-based learning note, (Perrotta et al, 2013), problems arise when digital games are designed for and/or introduced into schools with a limited awareness of the role that context plays in a gaming experience and/or the complicated links between digital culture, game play and identity in young people’s lives (Stevens et al, 2008). A related set of difficulties comes into play when the educational potential of games is discussed without reference to the role of teachers in games-based classrooms, or when games are represented as complete, ‘teacher-proof’, inherently appealing knowledge packages that will generate learning across all student cohorts, regardless of where or when or how they are introduced into a classroom.

This ‘black boxing’ of digital games as ‘learning machines’ (Prensky, 2005) has informed a growing body of literature focused on such things as the ‘nature’ and ‘potential’ of games to contribute to student learning (New Media Consortium, 2012); the reasons why games are

http://dx.doi.org/10.2304/elea.2014.11.6.569
particularly suited to educational purposes in the twenty-first century; the inherent appeal of games to students represented as ‘digital natives’ (Prensky, 2001); the unique affordances serious games provide to experientially understand complex matters (Derryberry, 2007); and the particular domains of schooling that could benefit from integration of digital games (Young et al, 2012). Much of this literature, while recognising elements such as the affordances and ‘qualities’ of games, adopts a relatively uncritical stance towards matters of take up, suggesting that games will almost automatically improve student engagement, experience and achievement. ‘Black box’ views of games marginalise the role of context and the ways in which teachers impact upon what games achieve in school. Yet, as Egenfeldt-Neilson (2006) notes:

Researchers are consistently finding that teachers play an important role in facilitating learning with videogames, in steering use in the right direction and also in providing an effective debriefing that can catch misperceptions and interesting differences in student experiences while playing. (p. 205)

Sociocultural perspectives on interactions between games, school and learning, foreground ways in which the introduction of games into school contexts is considerably more complex than is sometimes acknowledged. Games (serious or otherwise) do not exist in isolation and game play is linked to issues of identity, performance and sense of self (de Castell & Jensen, 2003; Beavis, 2004; Gee, 2007; Chee, 2011). Amongst other things, this means there is no single way in which games will be understood and engaged within diverse schooling contexts because factors such as gender, socio-economics, cultural background as well as interest, competence and prior experience all shape what students bring to a games based environment (Beavis & Charles, 2007; Dezuanni, 2010; Chee, 2011; Young et al, 2012).

Yet, as Pelletier (2009) notes, much of the literature exploring games, learning and schools celebrates the learning ‘potential’ of games and game play while consistently failing to attend to the social and institutional contexts which shape play in the first place. What a games based learning environment in school actually becomes is closely tied to the way teachers think about games including what they believe can or cannot be achieved with games and how they believe games should or should not be used. Squire, for example, argues that ‘[t]he educational value of game play comes not from the game itself, but from the creative coupling of educational media and effective pedagogy to engage students in meaningful practices’ (2002, p. 10). Similarly, Mehrotra and others (2012) suggest that while different games variously support learning of a range of kinds, the ways in which teachers work with games has a direct impact upon the successes or failures of games based initiatives, with different outlooks and expectations on the teachers’ part having material consequences.

For schools to fully benefit from the use of digital games in the classroom, it is necessary both to recognise the influence of context on how games are understood and played, and to understand the important role that teachers play in both shaping and negotiating these contextual conditions. While individual studies do exist which focus specifically on the ways in which teachers make a difference to games based learning outcomes, the role of teachers within games based learning more generally has been identified as a neglected part of the research within games/education literature, and one which warrants close and ongoing attention (Connolly et al, 2012; Perrotta et al, 2013). This article is directed towards addressing this absence.

The article proceeds from four assumptions. First, compelling evidence of the potential for games to impact positively upon the learning of diverse learners in primary and secondary schools justifies ongoing exploration of games and schooling (Connolly et al, 2012; Young et al, 2012; Perrotta et al, 2013). Second, this potential impact is closely tied to how teachers work with games (and the games that they choose). Third, teachers’ beliefs about what is (or is not) possible with games will inevitably influence the decisions that they make about how, when, and for what specific purposes they bring digital games into their classrooms. Fourth, any attempt to better understand the broad phenomenon of games in education needs to pay attention to the beliefs and practices of the teachers who are at the forefront of the decision making about how, when and if games will be brought into classrooms.

With this as our starting point, we draw upon data collected for a large scale, mixed methods research study focusing on literacy, learning and teaching with digital games in Australian classroom, to focus explicitly on the attitudes, expectations and understandings related to digital
games and games based learning held by diverse teachers at the beginning of the project. We seek to identify the beliefs about games that motivated teachers’ participation in a digital games research project while focusing, as well, on concerns that teachers express about risks or limitations of such a project. Our aim throughout is to develop a detailed picture of the mindsets that teachers bring to games-based learning environments, and the relevance of these mindsets to broader debates about the relationship between games, learning and school.

**Serious Play: an introduction to a research project**

This article draws upon data from the project *Serious Play: digital games, learning and literacy for twenty first century schooling*. Funded by the Australian Research Council, over a three-year period the project investigates what happens to literacy and learning, curriculum, pedagogy and assessment when digital games are introduced into schools. It explores ways in which young people’s out of school experience of games and games-based learning can be used to support literacy, creativity and disciplinary learning through the use of both commercial and ‘educational’ (serious) games; and how this learning is best assessed.

The study involves partners across two Australian states – Queensland and Victoria – and brings together a large research team with teachers in five primary schools and five secondary schools, across a variety of curriculum areas, in state and private jurisdictions, encompassing a range of socio-economic and geographic diversity, and mixed and single sex schools. Over 400 students participated in the study in its first year, ranging in age from early primary – grade 1 (5-6 year olds) through to middle secondary school – grade 9 (14-15 year olds), together with teachers from the 10 schools. Teachers and schools participating in the project were not selected as representative of a larger cohort of teachers across the country. Rather, teachers were working in schools that had opted in to the project as industry partners. This means that the schools, and in many instances the participating teachers, were already interested in (and in some cases experienced with) using games in the classroom. That is, these teachers (or their schools) already had a view that games had something to offer, but the range of experiences teachers had had personally as game players, or in using games in the classroom, varied widely.

The first phase of the project was a mapping exercise, during which we surveyed teachers and students, and conducted interviews with participating teachers across the 10 schools. Interviews canvassed a range of issues to do with teachers’ expectations and experiences as games players (or not), and the hopes and fears they held about what might be achieved through using games in the classroom. Specifically, questions addressed such matters as:

- Teachers’ personal experience as gamers
- Teachers’ knowledge about games
- Teachers’ attitudes towards games being used in schools: benefits and potential
- Teachers’ concerns about the use of games in schools

Following transcription, a broadly based thematic approach was adopted for the analysis of the data. In the approach chosen, a theme is ‘a pattern found in the information that at the minimum describes and organises possible observations or at the maximum interprets aspects of the phenomenon’ (Boyatzis, 1998, p. vii). Boyatzis goes on to note that themes may be initially ‘generated inductively from the raw information or generated deductively from theory and prior research’ (1998, p. vii). In this project the line between inductive and deductive is blurred. Working within this broad framework we set no limits around the number of potential themes that might emerge. Nor were we determined to prove that one particular theme was more powerful than any other. Rather, we sought to identify and hear the granulated specificity of these teachers’ priorities, hopes and concerns proceeding from the position that teachers’ beliefs about games will shape not only what they imagine games can achieve, but also by extension how they work with games, and the ways this intersects with other aspects of their teaching.

We approached the coding of the data with knowledge of major themes existing in previous research and worked initially to separate teachers’ beliefs into two categories: those that might be seen as optimistic or positive about what games could/should/might help teachers achieve in classrooms and those that were rather more cautious in terms of beliefs about the potential limitations of games, or issues that people working with games would need to be aware of. As the
coding progressed a third theme emerged: issues that teachers felt were things they did not have to worry about (even though these particular issues have been included in some other literature as common sources of teacher concern).

Given the tenor of much public rhetoric about games and learning this approach is particularly important. As Selwyn (2011) notes, at the present time, a ‘proof of concept’ mentality persists in much educational technology scholarship, often directing researchers and writers away from examining the compromised and problematic everyday uses (and non-uses) of technology in education (p. 717). In seeking to understand and identify these teachers’ expectations, hopes and apprehensions, this research provides a valuable counter to both overly pessimistic representations of the way games damage children and overly celebratory ‘booster’ rhetoric within debates about games and education. The experiences and expectations of teachers such as those in this study are much needed to provide insights and practical guidance for those involved in all aspects of games based learning – theory, practice and research.

**Teachers’ Beliefs about Games:**  
the optimistic, the cautious and the non-concerns

The themes identified are drawn from participating teachers across all 10 schools within the project, with specific quotes and ideas below drawn from 16 of the project’s teachers. As outlined above, for the purposes of this article we have grouped teachers’ beliefs about games and learning into two broad sections: the first explores the optimistic beliefs teachers expressed about the potential educational benefits of games, and what games might help them achieve in schools. The second explores the teachers’ beliefs about the limitations of, or potential issues to address, in regards to the use of digital games in school. In addition, a third section – ‘non-concerns’ – highlights potential problems identified in gaming literature that this particular group of teachers did not seem worried about.

**The Optimistic: why games are good for schools**

The majority of the comments made by the teachers related to the broad theme of optimistic beliefs. The following sub-themes featured in interviews conducted with teachers at all participating schools.

*Games are engaging, motivating, fun.* By far the most common claim within the teacher interviews were that games were ‘engaging’ and would, as a result, improve student learning. Similar to teachers interviewed in other studies (Millstone & BrainPOP, 2012; Sandford et al, 2006), the participants in this project commented repeatedly on the fun and engaging nature of digital games:

- They [students] really totally engage. They absolutely love it.
- When you are playing, you engage. Because you are in there. Games have that captivation.
- Above anything else, kids are very engaged by the activity of playing games. It’s a bit more personal for them; they are in more control and dictating exactly how it should go.
- Our experience with *JustDance*, as a shared strategy with performing arts teachers, for our professional development, brought a lot of smiles.

Teachers noted the emotional response linked to playing games in schools:

- Their emotional response to the game, when they are getting higher and higher, and the pressure’s on and their excitement levels are up, they are jittering.
- One thing that can really engage learners is doing something a little bit different, physically, than what they normally would.
- Our experience with *JustDance*, as a shared strategy with performing arts teachers, for our professional development, brought a lot of smiles.

In a similar vein, it was frequently claimed that games were almost inherently motivating and would therefore help keep students’ attention:

- Irrespective of what game it is – as soon as you mention a competition or there’s a chance of winning something or likewise, whether it’s in the game or a one-on-one maths competition, the
Teachers' Beliefs about Digital Games

boys are very engaged. So that's the main element, I think. It's obviously engaging the boys and then moving on from there.

Games are learning in disguise. The beliefs that games are engaging, fun and motivating, are reflected in a second theme within the data: that games allow teachers to introduce school work in disguise:

They don't see it as so much maths, or whatever it might be. They just see it as a bit of fun. But to me it's reinforcing some of the key things that we're trying to get through here in the classroom.

I want the kids to have fun. They don't perceive it as 'learning', but it is.

Claims about the motivational potential of games, and their inherently 'fun' nature are reflected in an unstated but powerfully implied assumption that where there is fun, and motivation, then learning is likely to occur. This can be expressed in the relatively straightforward idea that fun + motivation + school-in-disguise will equal learning. This was a powerful theme in the teacher interviews:

Kids absolutely love it and get so much enjoyment out of it and they're learning in the process and they're engaged by it. I mean you couldn't ask for anything more than that.

Games develop general, generic, 'twenty-first century' skills. The third set of benefits associated with digital games relate to their potential to develop in students the sorts of abilities and dispositions that have been variously described as 'general capabilities' (Australian Curriculum Assessment and Reporting Authority, 2013), skills for a knowledge economy (Thomas & Seely Brown, 2011) or 'twenty-first century skills' (Klopfer et al, 2009). While there is a considerable amount of disagreement in scholarship about the loose ways in which the label 'twenty-first century skills' is employed (Facer 2011a), there was agreement amongst many of the teachers that some of the most valuable outcomes from games based projects were the opportunities they provided for students to develop skills rather than content knowledge. There were several dimensions to these claims.

First, it was frequently claimed that games enhanced creativity: this was seen as particularly significant given public rhetoric about both the need to foster creativity within the schooling system, an increasing emphasis within the new Australian curriculum on the importance of creativity, and diverse literature which maps the apparent difficulties of achieving 'creativity' outcomes within the confines of formal schooling (see for example Craft, 2005; Burnard & White, 2008). Teachers noted that:

Gaming is one of those areas that does actually facilitate creativity and innovation, it gives them the chance to really work their imagination and keep that stuff going, and from industry, from everywhere, there is that demand on education to produce creative and innovative thinkers, but hardly any education actually does that.

Thinking skills and problem solving skills were also identified as important benefits of working with digital games:

- Thinking skills
  I prefer games personally for how they make you think, that they can teach you think outside the square and problem-solve and all that sort of thing.

- Problem solving
  I'm sure I, at some stage, thought it was all just a bit mindless. But no ... they're not just sitting there dumbly in front of a computer. There's a lot of interaction, a lot of thinking a lot of [problem solving].

  I prefer the games for how they make students think and they can teach them to think outside the square. As well, they train on problem-solving skills.

Teamwork and collaboration were also identified as potential benefits both within and across schools, with teachers noting that:

I'm also interested in the collaborative stuff. The Minecraft example is really interesting. Because from the educators perspective you have to think about how to manage that environment and how much freedom to you give to them and say just go for it, that's really interesting I think.
And how they are sort of socially organising themselves. You know, with Minecraft we’ve got 140 kids and in that environment it’s raising really interesting questions about social organisation.

We connect with schools in other countries. We have made links with a school in the [United] States and we also have a sister school in South Africa.

Comments such as this are common within games literature as teachers regularly identify thinking skills, problem solving skills and collaboration as benefits that flow from working with games (McFarlane et al, 2002).

On a related noted, several teachers spoke about the potential for games based learning environments to encourage communication, and to provide new ways for learners to communicate their understandings. This was also linked to opportunities for students to either develop or improve social skills through collaborative game based interactions:

So the communication, it’s not just about the numbers it’s about the communication, the social skills, the interaction. They are developing their social awareness. How do I ask someone? How do I not offend someone by giving them an answer or helping them out? So it’s just a broad spectrum I’m finding of opportunities.

Teamwork4 and working together to come up with something, but also just having the ability to present in front of us and share their ideas.

Games cater for diversity. While the subthemes mentioned to date generally refer to the potential for games to help all learners, there was also a significant amount of data relating to the potential for games to benefit some learners in particular ways. Games were regarded as almost universally appealing to all potential students. At the same time, teachers were conscious of the fact that games might be more engaging for some students than for others. One teacher noted, for example:

There was some resistance from kids, who are not into computer games; they don’t play them in their own time. They are not interested in finding out how it works, so they are turned off.

That being said, there were also several claims made about the potential for games to benefit learners who might be disengaged within a typical or traditional classroom context. The two most common claims made in this regard related to achievement level and gender. Teachers noted the potential for students to proceed at different rates:

The person who’s the most challenged can still succeed, whereas the really clever ones can still be challenged.

[we’ve] seen strength in other kids that don’t shine or do really well.

One teacher commented that working with games allowed him to respond to the particular learning needs of a child with Down’s Syndrome. Others claimed that games were particularly motivating for boys:

Particularly, working in a boys’ school, straightaway, you talk games and the boys are engaged straight away.

You talk games and boys are engaged right away.

The Cautious: things that need to be thought about

The themes explored to this point reflect a remarkable degree of consistency across the diverse teachers in the project. In number and consistency, the optimistic beliefs of teachers far outweigh themes under the second broad category of beliefs: areas of caution. There was considerable variety in terms of the issues linked to this theme and also far less consistency across teachers. Each theme presented in this next section of the article, therefore, need to be understood as reflecting the views of generally only one or two teachers. Nevertheless, it is this very diversity in terms of the range and scope of concerns that are significant for researchers seeking insight into factors that shape teachers’ choices to work with digital games.

The novelty might wear off. A first concern speaks back to the original claims that games would be automatically engaging for most or all students. Teachers noted that although this may
well be the case, it would be possible for this appeal to be lost if the novelty factor of seeing games in their classroom began to wear off:

To really capture – to really get these kids involved, it’s got to be something – they’ve got to see the mystery in it. I mean, they like playing those other things just briefly too. But how long does the novelty of it last?

And while in some contexts teachers spoke about the engaging nature of games, they also noted that any individual game could quickly become boring once students had mastered the challenge, or completed the particular task:

The GoldRush game was just an introductory lesson. They got a bit sick of it after one lesson when they nearly finished the game. They worked out they could get as much money as they could.

Teachers could lose control. A different concern relates to the impact of games on teachers’ control of learning and the learning environment. This issue has been identified in other studies, with teachers expressing concerns to varying degrees. While in some instances (e.g. Sandford et al, 2006) teacher anxieties on this count turned out to be less than anticipated, in others, (e.g. Merchant, 2013) loss of control of student behaviour in the in-games world was a significant issue. Issues of control were raised by teachers in this study a range of ways. One teacher expressed an anxiety about the potential challenges to their sense of identity:

It turns weird if my role is becoming more of an explainer and less of a teacher. Such as just saying how to play the game and not teaching the topics.

Another spoke about the difficulties of controlling what students were doing and how they were progressing:

The scope is too large, so I can’t control where the kids are up to and I can’t manage the learning associated.

A third linked a possible loss of control to concerns about their sense of personal competence:

I feel I’m probably still not autonomous enough in understanding how games can be used, and I’d like to improve that.

And a fourth expressed anxiety about games being seen as a source of information when teachers could not be sure if the information was reliable:

For some of the games, we don’t know who has created them or what they are relying on for information. So you’d have to be a reliable source and designer that we know that whatever’s in there is up to date, accurate information.

The limits of time and resources. This challenge is a familiar one in the literature and relates to concerns about resources – of time and technology:

There is no real time frame for finishing.

The lack of time we have in the computer labs, and if computers are down, or something happens can impact on our lesson.

Will students know they are learning? In the previous section we noted the ways in which some teachers celebrated the ways that games based classrooms could almost obscure the fact that students were learning. The other side of this reflection is seen in teachers’ concerns that this might impact negatively upon students if they don’t understand that they are (or have) been in a learning environment not just a ‘play’ environment. As Francis (2006) notes, one of the problems found in some games based interventions was that ‘students became so engaged with the activity of gaming that the educational focus of the activity was lost’ (p. 2). This concern was echoed by one of the teachers in our project, expressing the view that the educational focus and purpose of games based learning must be deliberate and overt:

Sometimes I get worried about that with some of the games that we do. That they don’t always get the deeper benefits of it. They just see the novelty factor.
These were the main sources of concern expressed at the outset of this project. Just as interesting, however, are the factors that these particular teachers did not seem to be concerned about, even though literature (and popular discourse) suggests that these are common obstacles faced by educators wishing to work with games in their classrooms.

The non-concerns

We were surprised to find that despite the prevalence of concerns with threats and problems in much popular debate when games and education are thought about in the same breath, there were a number of topics that simply did not emerge.

Despite anxieties about violence and ‘inappropriate’ content that characterise periodic media panics about games, virtually no concern was expressed about the potentially inappropriate nature of games (in terms of violence or unsuitable adult themes) with respect to students’ out of school games, or games that might be selected for use in schools.

Similarly, while some literature which claims parents are a major obstacle to the introduction of games into classrooms (Pepe, 2011) the teachers participating in this project did not see parental attitudes as any real impediment to their use of games:

I guess we’d have to keep them informed as to what they need to do. It’s a bit of a tricky one, but I think personally, just looking at my class in particular, they seem to be very flexible in regards to their learning and obviously, they want the best for their kids. So they’re definitely open-minded and open to what we’ve suggested.

Nor did participating teachers express concerns about the impact of factors such as home access to technology, games or the internet on students’ attitudes towards, or competence within, broad fields of gaming. When it was noted that not all students have the same access to gaming technology or the internet at home, this was seen as an aberration rather than an obstacle: something that did not require significant time or attention. There was also virtually no concern expressed about the potential cost of the games or game playing technologies for the school.

Discussion

In both what is said and what is not said, the data explored above provides interesting insights into teachers’ understandings about the potential benefits and possible limitations associated with digital games. Teachers’ comments provide valuable insights for those researching in the broad field of digital games: insights with implications for those working with teachers in this area. In reflecting on these comments we are influenced by the ‘teachers first’ position articulated by authors such as Bigum and Kenway (1998): that is, the belief that if we are hoping to introduce any new technologically mediated or games based activity into schools in a way that generates maximum benefits for learners we must recognise the need to make teachers’ professional learning needs a priority. This commitment must go beyond attempts to provide information about what games are available, to encompass, instead, opportunities to understand more fully the nature and affordances of specific games and how they might be used, and to reflect upon the full range of factors that impact upon what happens to learning when games are introduced into schools.

A central observation to be made is that the teachers in the project were overwhelmingly positive about the potential for games to impact positively upon learning environments. Their comments are consistent with widely rehearsed and familiar claims in gaming literature about the capacity of games to engage and motivate students thereby increasing their opportunities to acquire valuable skills and learn new material. The largely optimistic tone of many of the teachers’ comments provides a valuable counterpoint to claims by authors such as Prensky (2005) who suggests that teachers (largely by virtue of their age) will automatically see games as ‘trivial’.

Looking closely at the data does, however, demonstrate the ways in which this optimism is paralleled by several important silences. In the remainder of this article we explore what might be hidden or obscured. In exploring the silences in teachers’ comments our goal is to highlight issues that might warrant further attention, and to provide a baseline against which to map changes in teachers’ attitudes, understandings and experiences over time.
First, much of the data emphasises the almost magical properties of games to engage, inspire and teach students. In other words, even the teachers themselves seemed prone to overlook the crucial role that they would play in how games were experienced and responded to by diverse students. Attention needs to be paid to the pedagogical strategies and views of learning that teachers draw upon to work with games (Francis, 2006; Chee, 2011); and the crucial role of the teacher in determining whether games are used in effective and appropriate ways (Beavis, 2012).

Second, seeing games as inherently motivating also has the potential to construct them more as a springboard to learning, than a means of learning in themselves. This position might be expected to change as teachers in the project become more experienced and skilful in the use of games, but it is also reflective of wider discourses within education that legitimate games as ‘motivation’ without venturing into more problematic territory related to the nature of disciplinary knowledge and formal school curriculum.

A third, related, point concerns the ways in which celebrating the potential for games to produce ‘learning in disguise’ contributes to a problematic representation of learning as a sort of ‘nasty pill’ that must be ‘sugarcoated with fun and games’ (Papert, 1996, pp. 50-51). Papert’s argument is that such a mindset can lead to the belief that learning is to be endured, rather than ‘embraced and enjoyed’ (pp. 50-51). This raises questions about whether or not we want students to be able to recognise when they are learning, and, by extension, to develop some sort of metacognitive understandings about learning and about the subject. Can this happen if games are understood as Trojan horses smuggling learning into unaware students’ lives?

One of the most powerful causes of teacher optimism was the belief that games contributed to the development of skills and capacities that exceed the boundaries of disciplinary study: collaboration, problem solving, thinking skills and so on. Such observations are consistent with those noted in other studies (McFarlane et al, 2002; Egenfeldt-Nielsen, 2006). However, while teachers were optimistic about the potential for games to engage learners, there was less discussion of the potential for games in terms that relate specifically to existing assessment structures and foci. While there was widespread agreement that every curriculum area could find a way to work with digital games, teachers were more likely to refer to generic skills (rather than curriculum objectives) when discussing the educational benefits of games.

For some teachers at least there was agreement that games ‘could’ be relevant to all curriculum areas (with only physical education commonly given as an area where games would perhaps not be applicable) but at the time of the interviews this potential was not discussed with confidence. There was also some doubt about whether games were best used to introduce concepts or reinforce concepts. This highlights among other things the need for additional opportunities for teachers to be given sustained opportunities to explore the nature and affordances of various kinds of games, the relationship between games and different curriculum areas, and the difference between using games to introduce new concepts or content on the one hand, or using them to reinforce what has already been learnt on the other.

As previously noted, a striking pattern within the data was a recurring tendency to represent games as universally appealing to all students. While the teachers knew their students, and might be expected to have an implicit understanding of difference and the phantasmagoric nature of ‘universal appeal’, the lack of explicit discussion of this issue risks glossing over differences in gender, class, cultural background, all of which can have a profound impact upon how/when/why students would be engaged or motivated in working with specific games. Similarly, there was no explicit discussion of the impact of socio-economics nor the ways in which out-of-school access to games or technologies might influence in-school outcomes, consistent with points made by Facer (2011b). When teachers did speak about such things as the appeal or benefits of games to particular sub-groups of students (the most common of which was boys), they tended to represent the members of that group as generally the same, a trend that gender research has been problematising in diverse school contexts for many years (Rowan et al, 2002; McCaughtry, 2004; Martino & Kehler, 2007).

While the positive disposition towards the potential of games to achieve diverse outcomes is welcome, it is important that this enthusiasm does not obscure the important fact that students’ existing relationships come with them into games-based classrooms. Although it has sometimes been claimed that, when playing, gamers enter what Huizinga (1950) once described (in a pre-digital era) as a ‘magic circle’ – a place set apart from normal life – the idea that game play creates a
circle within which players are exempt from the rules or traditions of ‘ordinary’ life has been widely critiqued by authors who note that the rules of ordinary life intersect with the rules that apply in a gaming context (Consalvo, 2009). Students who have previously had troubled or troubling interactions with each other will not automatically find themselves in a new or neutral relationship simply because games have been added into the context. Despite observations made about the ability of games to generate teamwork, collaboration and cooperation, ‘gamers’ are usually the same ‘kids’ they were before they entered a game environment and this needs careful and close attention.

The data relating to teachers’ beliefs about the risks or limitations of working with digital games provides a similarly interesting set of challenges.

To begin with, although there is a great deal written about the inappropriate content associated with many games, teachers expressed little concerns with this area. They were clearly comfortable in their ability to demonstrate that, although some games might, indeed, be inappropriate for use with children or schools, there is a rich and variety of games available that were entirely appropriate in form and content.

Similarly, the teachers also expressed confidence in their ability to ‘sell’ games to children’s parents. This suggests that parental attitudes need not be the barrier they are sometimes represented as. This is a powerful reminder of the role that teachers play in shaping the gaming context and representing games as legitimate parts of a learning environment.

It is also interesting to note that there were very few concerns raised about:

• Limitations in terms of students’ prior experiences with games
• Limitations in terms of students’ access to games at home
• The possible tensions that may arise when games are brought into school contexts.

Conclusion

This article is based upon the related beliefs that games have the potential to impact positively upon student engagement and student learning, and that the context in which games based learning takes place has an impact upon what actually happens. Teachers play a central role in both the creation and negotiation of context and their beliefs and understandings about games shape how, when and why they work with games with diverse learners.

The data explored above suggest that teachers entering the Serious Play project did so with some very specific ideas about what games would add to students’ learning. The grounded but optimistic nature of these claims is an important counterpoint to both overly hyped up representations as games as learning machines and overly negative assumptions that games will only do damage to students/classrooms/schools. They also provide a basis from which to explore further the intersections between pedagogical decision making and issues of identity, context and the multiple factors which influence what actually happens when games are brought into schools.

The ongoing work needed to develop ‘real world accounts’ of what happens when games meet classrooms as called for by authors such as Perrotta et al (2013) and Bigum (2012) must be accompanied by serious efforts to understand how and why teachers begin to work with games in the first place. Focusing on teachers’ understandings, expectations and beliefs about games is a vital component of any broader attempt to better understand the relationship between games, school and learning.

References


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http://dx.doi.org/10.1080/09540250701650615


http://dx.doi.org/10.1007/978-94-011-4944-0_19


http://dx.doi.org/10.1080/01411920802224238


http://dx.doi.org/10.1016/j.compedu.2012.03.004

http://dx.doi.org/10.1177/1555412009343575

http://dx.doi.org/10.4324/9780203357965


http://dx.doi.org/10.1080/0022027032000145552


Catherine Beavis et al

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Appendix 3.

Orbit Learning Objectives

Preamble

Overview of game approach

PRACTICAL AND POSITIVE

Orbit takes a positive and practical approach to child sexual abuse prevention; an approach that is informed by evidence-based research.

As indicated by the pyramid diagram (see Figure 1), the game’s foundation is the belief that healthy attachment to adults is the key to preventing and minimising the negative effects of child sexual abuse. The game aims to build on this foundation by helping the child build a healthy self-concept. It is within this context that the game presents the child with specific information about child sexual abuse and what to do if they are being abused.

The game will focus on progressively developing key learnings and skills. It will not rely on rote learning. It will encourage the development of relationships, trust, wellbeing, self-worth, esteem, and confidence; and will encourage the building of support networks, and community knowledge and responsibility.

HEALTHY ATTACHMENT TO TRUSTED ADULTS

The game will help the child build a support network of five trusted adults. It will guide the child’s decisions so that people from a range of environments are selected. This is done in an effort to ensure that children are not selecting adults only from the environment where abuse may be occurring.
If a child who is currently being abused is playing the game, it is possible, and even likely, that the child will select an abusive adult as part of their support network. For this reason, the child is asked to select five adults across a range of environments so that if the child is being abused by one or more of these “trusted adults”, others in the support network will not be abusing them.

HEALTHY SELF-CONCEPT
The game aims to help the child build a healthy self-concept by building their confidence, problems solving skills, and self-worth so that the child can learn to make good decisions for their own well-being. It will incorporate some activities used by counsellors to help children who have been abused build a healthy self-concept. This will be embedded in a wider context of the United Nations Rights of the Child and building healthy relationships.
SEXUAL ABUSE INFORMATION

Playing the game and related activities will help the child:

- understand what sexual abuse is;
- recognise that sexual abuse is illegal and it is not his/her fault; and
- understand that if he/she is being sexually abused, he/she needs to tell all of the adults in his/her support network.

In addition, it will look more deeply at how the child can go about telling their support network about abuse and the barriers to telling. These barriers include overcoming the influence of the abuser(s) and their power, pressure, and control; and fears about what will happen if they tell (e.g., Will the person go to jail?, Will I lose my family?).

*Orbit* will provide practical options for the child whilst acknowledging that there is no “correct” way to proceed.

MIXED DELIVERY MODEL

The game has been designed to be used in a school setting and a set of companion experiences for the classroom has been developed to support the game. Some of the *Orbit* messages are presented completely in the game and others are introduced in the game and developed further within the classroom.

The game encourages parents and other significant adults in the child’s life to be involved. In addition, the companion website offers supporting materials for adults. Adults in the child’s support network are asked to enter into an agreement with the child, and the child gives them a responsibility card for the adult to carry with them.

Developing the child’s support network is an important aspect of the game. Within the game, children identify the adults in their support network and create in-game representations of them. These characters take part in the game and support the child’s game character to complete the game. The child also has the opportunity to play mini-games with their trusted adults via side-by-side game-play.

*How the game addresses perpetrator information*

Information from the Queensland Police Service on modus operandi of offenders was obtained from the Child Protection Unit. This information is in the form of police
reports of the events; and data from a survey of protection officers asking them to recall a recent abuse event, consider the personality characteristics of the perpetrator (and victim), take a longer term view of events leading up to the abuse, knowledge by others of the abuse, and techniques used to hide the abuse (including treats etc). These were incorporated into the Orbit game and provide more depth of realism and relevance to the game and companion experiences.

The adult learning goals include perpetrator information and are provided via the website to help adults recognise the early warning signs of child sexual abuse.

**Content that has been intentionally omitted from Orbit**

Decisions were made to not focus the Orbit game on some areas that are common elements of other sexual abuse prevention programs. These include:

- **stranger danger / anti-abduction** - This was excluded because most perpetrators of sexual abuse are known to the child. In addition, the *Being Safety Smart* (University of the Sunshine Coast, 2009) game has clear anti-abduction messages.
- **trust your feelings / intuition messages** – Due to the grooming behaviours used by perpetrators, children may not have negative feelings about the abuse situation. In some cases, the perpetrator can make the victim feel “special” or that it is their fault. Therefore, the game will use a very clear statement of what sexual abuse is and why it is illegal and why it is never the child’s fault. However, the game will include messages around managing feelings.
- **safety on the internet** – The Orbit team felt that this issue could easily fill an entire game on its own.
- **general safety information** such as regulations about cars, bicycles and pedestrians, what to do in the presence of guns and other weapons, and how to respond in an emergency. Whilst these messages are good, general information for all children to have, the Orbit team believes that it should not be the focus of a sexual abuse prevention program.
- **playground bullying** – This could very easily be a game all on its own.
- **protective behaviours** such as saying “no”, crying, running away, and self-defence. Children are not responsible for protecting themselves from sexual abuse and it is
never the child’s fault for being abused. Prevention programs should encourage adults to take responsibility for protecting children (Tomison, 1995). However, it is important to train children about sexual abuse because usually only the victim and the abuser will be aware of what is going on. Therefore, children need to know that sexual abuse behaviours are inappropriate, and understand that they can and should take action and know what actions to take (Plummer, 1993; Reppucci & Haugaard, 1993). In addition, protective behaviours only work some of the time and in some situations can make the situation worse (Plummer, 1993). For example, perpetrator accounts indicate that behaviours such as crying may result in a stronger feeling of control by the perpetrator and may serve to perpetuate the abuse. Many child sexual abuse prevention programs have been criticised for focusing on the child protecting themselves from abuse (Plummer, 1993; Reppucci & Haugaard, 1993; Tomison, 1995). Physical self-defence behaviours may cause an increase in violence by the abuser (Plummer, 1993). Furthermore, teaching children to use protective behaviours in abuse situations can lead a child to feel too confident in their ability to escape from an abusive situation (Plummer, 1993).

References


**Orbit Learning Objectives - Children**

*Goal A1. Children are able to identify sexual abuse*

**GOAL A1 - A. CHILDREN ARE ABLE TO IDENTIFY TOUCHING FORMS OF SEXUAL ABUSE**

By the end of this game, players will be able to:

1. describe private and public parts of the body.
2. describe private and public parts of the house.
3. identify private parts of the body.
4. use correct anatomical terms when referring to their private parts:
   - penis & testicles
   - vagina & vulva
   - nipples
   - bottom/anus
   - mouth.
5. list and explain the situations when it is okay for someone to touch their private parts:
   - a doctor or parent/carer who is helping you keep your private parts healthy and clean if there is a reason you are unable to do it yourself.
   - a doctor may need to touch your private parts when you are sick. Your parent/carer would usually be with you.
6. agree that it is not okay for someone to touch your private parts at any other time.
7. agree that it is not okay to be forced to touch another person’s private parts.

**GOAL A1 - B. CHILDREN ARE ABLE TO IDENTIFY NON TOUCHING FORMS OF SEXUAL ABUSE**

By the end of this game, players will be able to:

1. Recognise forms of non-touching abuse:
   - someone showing you pictures of people’s private parts
   - someone wanting to take naked images of you
   - someone showing you their naked private parts
   - someone looking at your private parts
• the use of sexually explicit words
• being asked to perform sexual acts.

GOAL A1 – C. CHILDREN KNOW THAT SEXUAL ABUSE OFFENDERS CAN BE ANYONE
By the end of this game, players will be able to:

1. distinguish between sexual abuse offenders and non-offenders based on their actions, not on what they look like or their relationship to the child.

GOAL A1 – D. CHILDREN KNOW THAT SEXUAL ABUSE CAN HAPPEN TO ANYONE
By the end of this game, players will be able to:

1. agree that sexual abuse can happen to anyone regardless of age, gender, size, cultural background, abilities / disabilities, or peer group.

GOAL A1 – E. CHILDREN ARE AWARE OF SOME TECHNIQUES OFFENDERS MAY USE
By the end of this game, players will be able to:

1. agree that sometimes people who are older than you want to manipulate you into believing something that is not true.
2. recognise situations where people who are older than a child is manipulating the child into believing something that is not true.
3. list the techniques that offenders may use:
   • coercion
   • threats
   • secrets
   • bribes
   • treats
   • making the child feel special
   • blackmail
   • making the child believe they wanted it
   • making the child believe it is their fault
   • tricks
   • isolating the child from those who can help them
• making child think no one will believe them if they tell
• grooming: a gradual, progressive process that is used to make the child be
  “okay” with the abuse.
4. explain each of the techniques listed in the previous objective.
5. agree that in the above situations, the offender does not want others to find out
  about the abuse and that is why he/she is using the techniques.

Goal A2. Children have a support network of trusted adults

Goal A2 – A. Children identify 5 trusted adults that are in different parts of
their life

By the end of this game, players will be able to:

1. agree that just because someone is a relative or has power over them, this does not
   mean that the relationship qualities are positive.
2. list the qualities of the relationship they have with an adult.
3. identify five trusted adults in different parts of their life to form their support
   network:
   • at least one from their family
   • at least one from their learning environment
   • at least one from somewhere else.
4. explain the significance of identifying multiple trusted adults from multiple
   environments.

Goal A2 – B. Children ask 5 trusted adults to be a part of their support
network

By the end of this game, players will be able to:

1. implement strategies for choosing a trusted adult.
2. describe types of problems/issues a trusted adult could help with.
3. explain the purpose of the trusted adult network.
4. list various modalities for communicating with a trusted adult such as telephone,
   email, face-to-face, and letter.
5. construct their support network of five trusted adults.

6. agree that the choice of the trusted adult network is within their control.

7. agree that at any time the trusted adult network can be adapted and changed.

Related game objectives

By the end of this game players will:

1. have a network of 5 trusted adults.

2. have explained the purpose of the trusted adult network to each of the adults in their network.

GOAL A2 – C. CHILDREN & ADULTS FURTHER BUILD THEIR RAPPORT THROUGH COMMUNICATING

By the end of this game, players will be able to:

1. list circumstances when they may like and need to share information with a trusted adult.

2. articulate significant moments to adults in their support network.

3. identify and overcome barriers to communicating with trusted adults.

Related game objectives

By the end of this game players:

1. Will have spent time communicating with adults in their trusted adult network about the game and its content.

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Goal A3. Children have a healthy self-concept

GOAL A3 – A. CHILDREN UNDERSTAND THEY HAVE RIGHTS: SAFETY, BODY PRIVACY & RESPECT

By the end of this game, players will be able to:

1. state that in Australia we have laws to protect people, specifically children.

2. define the right to safety, body privacy, and respect.
3. agree that children have rights including the right to safety, body privacy, and respect.

4. list and describe different types of abuse (physical, emotional, neglect, & sexual).

5. agree that abuse occurs when people’s rights are violated.

6. agree that it is okay to protect your rights.

7. agree that children can turn to their trusted adults to help them protect their rights.

8. agree that it is an adult’s responsibility to uphold children’s rights.

GOAL A3 – B. CHILDREN KNOW THAT SEXUAL ABUSE IS ILLEGAL AND NEVER THEIR FAULT

By the end of this game, players will be able to:

1. determine power relationships that exist within abuse discourses.

2. explain why children are not to blame for abuse with older children and adults.

GOAL A3 – C. CHILDREN UNDERSTAND, VALUE, AND ACT ACCORDING TO THEIR SELF-WORTH

By the end of this game, players will be able to:

1. communicate their thinking on issues that are important to them.

2. communicate their feelings on issues that are important to them.

3. list what they are good at.

4. state what other children are good at.

5. agree that they have an important place in society.

6. agree that it is important to feel good about yourself.

Related game objectives

1. solve problems occurring within the game.

Goal A4. Children plan what to do if they experience sexual abuse

GOAL A4 – A. CHILDREN DISCLOSE CHILD SEXUAL ABUSE TO TRUSTED ADULTS

By the end of this game, players will be able to:

1. identify the choices they have for disclosure including who, where, when, and how.
2. use correct terminology to communicate effectively with trusted adults.
3. acknowledge and validate the wide range of feelings which may come with sexual abuse (including just learning that sexual abuse exists) such as shame, embarrassment, fear, worry, sadness, confusion, anger, etc.
4. acknowledge feelings and their influence on the disclosure of sexual abuse.
5. agree that they should keep disclosing to their support network until something is done.
6. list other choices for disclosure outside their support network such as the Kids Help Line, school counsellor / guidance officer, police officer, or doctor.

**Orbit Learning Objectives – Adults**

**Goal B1. Adults can define child sexual abuse**

**GOAL B1 - A. ADULTS UNDERSTAND THAT CHILDREN HAVE RIGHTS: SAFETY, BODY PRIVACY, & RESPECT**

Adults who have engaged with the adult learning materials will be able to:

1. state that there are laws in Australia designed to protect children.
2. explain that children have rights including the right to safety, body privacy and respect.
3. define the right to safety, body privacy, and respect.
4. define different types of abuse (physical, emotional, neglect, & sexual).
5. state that the United Nations Convention on the Rights of the Child was created to protect children across the world.

**GOAL B1 - B. ADULTS ARE ABLE TO IDENTIFY TOUCHING FORMS OF CHILD SEXUAL ABUSE**

Adults who have engaged with the adult learning materials will be able to:

1. List and explain the situations when it is okay for someone to touch a child’s private parts:
   - a doctor or parent/carer who is helping the child keep their private parts healthy and clean if there is a reason the child is unable to do it themselves.
   - a doctor may need to touch the child’s private parts when the child is sick. The child’s parent/carer would usually be with the child.
2. Agree that it is not okay for someone to touch a child’s private parts at any other time.

3. Agree that it is not okay for a child to be forced to touch another person’s private parts.

**GOAL B1 - C. ADULTS ARE ABLE TO IDENTIFY NON TOUCHING FORMS OF CHILD SEXUAL ABUSE**

Adults who have engaged with the adult learning materials will be able to:

1. list forms of non-touching abuse:
   - someone showing a child pictures of people’s private parts
   - someone wanting to take naked images of a child
   - someone showing a child their naked private parts
   - someone using threats, bribes, coercion or tricks to show a child their naked private parts
   - someone looking at a child’s private parts
   - someone using threats, bribes, coercion, or tricks to look at a child’s private parts
   - the use of sexually explicit words
   - being asked to perform sexual acts.

**GOAL B1 - D. ADULTS KNOW THAT CHILD SEXUAL ABUSE OFFENDERS CAN BE ANYONE**

Adults who have engaged with the adult learning materials will be able to:

1. explain that sexual abuse offenders can be any age, gender, size, cultural background, abilities / disabilities, or peer group and may be someone who is either known or unknown to the child.

2. explain that sexual abuse may be perpetrated by another child and will be characterized by the use of threats, bribes, coercion, or tricks.

**GOAL B1 - E. ADULTS KNOW THAT SEXUAL ABUSE CAN HAPPEN TO ANY CHILD**

Adults who have engaged with the adult learning materials will be able to:

1. identify that all children regardless of age, gender, size, cultural background, abilities / disabilities, or peer group are at risk of abuse.
2. List the factors that make children vulnerable to abuse:
   - children rely on adults and the adult world for care
   - a natural power imbalance exists between children and adults
   - children’s level of cognitive and emotional development does not allow them to make informed choices about sex and sexual activities.
3. Agree that children who are isolated from the community are more vulnerable to abuse.
4. Agree that children with a disability are more vulnerable to abuse because they rely on adults more for their care.

GOAL B1 - F. ADULTS ARE AWARE OF SOME TECHNIQUES OFFENDERS MAY USE
Adults who have engaged with the adult learning materials will be able to:
1. compare and contrast the interpersonal dynamics of abusive child-adult relationships with those of healthy child-adult relationships.
2. agree that child sexual abuse is not about sex but about power and control.
3. list the techniques that offenders may use on children:
   a. manipulating the child into believing something that is not true
   b. coercion
   c. threats
   d. secrets
   e. bribes
   f. treats
   g. making the child feel special
   h. blackmail
   i. making the child believe they wanted it
   j. making the child believe it is their fault
   k. tricks
   l. isolating the child from those who can help them
   m. making child think no one will believe them if they tell
   n. grooming: a gradual, progressive process that is used to make the child be “okay” with the abuse.
4. define each of the techniques that offenders may use on children, listed in the previous sub-goal.

5. list the techniques that offenders may use on adults:
   a. grooming the family by gaining the family’s trust by filling a “need” for the family such as baby-sitter, mentor for child, or offering friendship
   b. influencing parents to believe child is in need of extra guidance, coaching, or support
   c. setting child up as someone who is not to be believed as a preventative measure against potential future disclosures.

6. define each of the techniques that offenders may use on adults, listed in the previous sub-goal.

7. agree that the offender’s purpose in using these techniques is to:
   a. gain the family’s trust
   b. increase access and opportunity to abuse the child
   c. decrease the chance of the child being believed.

**GOAL B1 – G. ADULTS KNOW THAT SEXUAL ABUSE IS NEVER THE CHILD’S FAULT**

Adults who have engaged with the adult learning materials will be able to:

1. explain why children are not to blame for abuse by older children and adults even if the child initiates or invites sexual contact.
2. agree that it is okay for a child to protect their rights.
3. agree that adults are responsible for protecting children’s rights.

**Goal B2. Adults recognise the impact of child sexual abuse on those who have been abused, their families, their families’ informal support network, and the wider community**

**GOAL B2 - A. ADULTS UNDERSTAND THE IMPACT CHILD SEXUAL ABUSE CAN HAVE ON THOSE WHO HAVE BEEN ABUSED**

Adults who have engaged with the adult learning materials will be able to:
1. agree that sexual abuse can impact negatively on the lives of individuals who have been sexually abused through their entire life (Lamont, 2010; Queensland Government, 2011).

2. agree that sexual abuse impacts individuals differently (Queensland Government, 2011).

3. agree that there may be long term impacts on a sexually abused individual even when no short term impacts are apparent (Queensland Government, 2011).

4. list the impacts sexual abuse can have on children who have been sexually abused (Access Economics, 2008; Lamont, 2010; Queensland Government, 2011):
   - low self esteem
   - self-blaming
   - feeling dislocated from friends and family
   - distrust of adults
   - suicidal thoughts and self-harming
   - attachment disorders
   - physical health problems
   - behavioural problems
   - teenage pregnancy
   - depression
   - anxiety disorders
   - learning disorders - children may struggle to learn at school and fall behind their peers
   - developmental delay
   - delinquency and criminal behaviour
   - high-risk sexual behaviour
   - behaviour that leads them to be singled out, bullied, and victimised
   - drug and alcohol abuse.

5. agree that individuals who have been sexual abused as children have an increased risk of (Access Economics, 2008; Lamont, 2010; Queensland Government, 2011):
   - psychological problems
   - suicide
- drug and alcohol misuse
- engaging in high-risk sexual behavior
- homelessness
- eating disorders and obesity
- physical health problems
- displaying aggressive, violent, and criminal behaviour.

6. agree that recovery from abuse is best facilitated by a supportive network of significant others (Queensland Government, 2013a).

7. agree that abused children who have positive school experiences where they feel they have succeeded academically, socially, or in sport have significantly lower rates of adult difficulties (Mullen & Fleming, 1998).

8. agree that the most serious effects of child sexual abuse are likely to occur when no one takes action to stop the abuse or protect the child (Queensland Government, 2013a).

GOAL B2 - B. ADULTS UNDERSTAND THE IMPACT CHILD SEXUAL ABUSE CAN HAVE ON FAMILIES OF ABUSED CHILDREN AND FAMILIES’ INFORMAL SUPPORT NETWORKS

Adults who have engaged with the adult learning materials will be able to:

1. acknowledge that discovering that a child has been sexually abused can produce feelings of shock, disbelief, guilt, blame, confusion, anger, and shame.

2. acknowledge that there can be barriers to providing safety for children who are being sexually abused.

3. list the possible barriers:
   - concerns about family breakdown or separation
   - concerns about family finances
   - concerns about possible changes required to the family’s living situation
   - concerns about possible changes required to the family routine and family activities
   - fear of involvement with statutory agencies and processes including police, child safety, criminal court, and family law court
   - concerns that relationships with family and friends may be affected
• may trigger memories of own history of abuse.

GOAL B2 - C. ADULTS UNDERSTAND THE IMPACT CHILD SEXUAL ABUSE CAN HAVE ON COMMUNITIES

Adults who have engaged with the adult learning materials will be able to:

1. acknowledge that the effects of child sexual abuse cost communities in terms of:
   • unrecognised potential of individuals who have inadequate support to sufficiently recover from childhood abuse
   • the negative consequences associated with drug abuse, criminal behaviour, and unwanted pregnancies that can stem from inadequate support to sufficiently recover from childhood abuse
   • those who protect, treat, and care for abused children and associated bureaucracies.

2. agree that learning that child sexual abuse has occurred in a community may lead to:
   • decreased feelings of trust and safety
   • decreased sense of connection and involvement with the community (e.g., sporting, cultural, neighbourhood, school)
   • stigma and isolation within the community.

GOAL B2 - D. ADULTS UNDERSTAND WHY IT IS IMPORTANT TO ADDRESS CHILD SEXUAL ABUSE

Adults who have engaged with the adult learning materials will be able to:

1. agree that every human being should have the necessary environment and means to enable him/her to develop to his/her full potential

2. agree that addressing child sexual abuse contributes toward providing the necessary environment and means to enable the child to develop to their full potential

3. agree that maintaining a culture of secrecy assists perpetrators of abuse.
Goal B3. Adults know what they can do about child sexual abuse

GOAL B3 - A. ADULTS UNDERSTAND WHAT IT MEANS TO BE A PART OF A CHILD’S SUPPORT NETWORK

Adults who have engaged with the adult learning materials will be able to:

1. agree that as part of a child’s support network, they are responsible for the protection of the child.
2. explain their responsibilities as part of the child’s support network.
3. discuss with others strategies to provide appropriate supervision and protection of children in their care.
4. recognise that their response to a child’s disclosure of abuse can affect the child’s recovery from the abuse.

GOAL B3 - B. ADULTS KNOW HOW TO PROACTIVELY ADDRESS CHILD SEXUAL ABUSE PREVENTION WITH CHILDREN

Adults who have engaged with the adult learning materials will be able to:

1. explain that having conversations with children about abusive behaviours gives children the language needed to disclose abusive situations.
2. explain to children that they are someone who is willing and able to have a conversation about sexual abuse.
3. distinguish between slang and anatomically correct terms used to describe private parts of the human body.
4. articulate the purpose of using anatomically correct terms to identify private parts of the human body when speaking to children.
5. use anatomically correct terms to identify private parts of the human body when speaking to children in everyday conversations.
6. recognise that due to power relations and social conditioning, children may find it difficult to say “no” to adults.
7. help their child identify situations when it is okay to say “no” to adults.
8. help their child practise saying “no” to adults.
9. discuss protective behaviour concepts with their child beyond the Orbit game.
10. support the child to develop a sense of body ownership.
11. distinguish between public and private spaces.
12. explain the difference between public and private spaces.
13. agree that children need to be able to explain the difference between public and private spaces.
14. examine the barriers to children disclosing sexual abuse.
15. discuss with their child the barriers to children disclosing sexual abuse.

**GOAL B3 - C. ADULTS KNOW HOW TO RESPOND TO DISCLOSURES OF CHILD SEXUAL ABUSE**

Adults who have engaged with the adult learning materials will be able to:

1. implement strategies to help a child to disclose.
2. provide appropriate support for the child making the disclosure.
3. discuss issues relating to confidentiality and privacy within the context of a child abuse disclosure.
4. demonstrate an understanding of issues relating to confidentiality and privacy within the context of a child abuse disclosure or non-disclosure.
5. manage issues relating to confidentiality and information sharing.
6. list particular behaviours that may require additional professional intervention.
7. assess whether behaviours require additional professional intervention.
8. record events associated with disclosure.

In addition to the above goals teachers, pre-service teachers, teacher aides, school ancillary staff, and those working with children will be able to:

1. find, interpret, and implement policy and procedures that influence the disclosure process.
2. identify legislation, policy, and procedures that influence the process of disclosure.
3. operate within local, state, and national frameworks, guidelines, policy, and legislation such as *Education Queensland’s Code of Conduct* (Queensland Government, 2013b) and the *Queensland Child Protection Act 1999* (State of Queensland, 2015).
4. advocate for the rights of children using policy and legislation.
5. access support from a supervisor in relation to the disclosure.
6. recognise the implications and limitations of legislation.
7. use appropriate language when documenting children’s abuse disclosures.

GOAL B3 - D. ADULTS KNOW HOW TO RECOGNISE INDICATORS OF CHILD SEXUAL ABUSE

Adults who have engaged with the adult learning materials will be able to:

1. describe developmentally appropriate sexual behaviours for children.
2. agree that developmentally inappropriate sexual behaviour may be an indicator of sexual abuse.
3. list indicators of child sexual abuse.
4. respond appropriately when children demonstrate developmentally inappropriate sexual behaviour.

References


Appendix 4.

Sample Memo Created During the Research Process

Memos are designed to be used as a thinking and documenting tool used during the research process. This particular Memo explores where one of the participant’s fits in terms of the evolving theory we were deriving and starts to explore relationships between concepts and evolve the titles and definitions for these concepts.
Memo #46 Perceiving Need Versus Conflicting Values  
Date: 7/9/2011

I decided to go back to my first interview again to mark out where this participant fits within my current theory.

However, when I started to look at the second row of data in my Jennifer Hilmes interview, I began to feel that **conflicting values** may not be the best title for that section. I am now thinking that conflicting values is a construct that I wanted to put in there but I'm not sure it aligns well with the data... I do think it is a sub category of a bigger category which I am now calling **Perceiving Need**... sometimes perceiving need occurs due to conflicting values.... or the conflicting values are what cause the teacher to perceive a need.... Perceiving the need is then followed by **seeking solutions**.

So just what is the relationship between conflicting values and perceiving need? Is it that conflicting values is a part of perceiving need or is it that conflicting values precedes perceiving need? Is perceiving need always preceded by conflicting values?

So in Jennifer Hilmes case, some ways that she has perceived need are:

- her school is a National Partnerships school - her school has been singled out as one of the lowest performing schools in Australia in literacy and numeracy (and is therefore being given large sums of money in an attempt to make a difference)
- that they have a high number of indigenous students and students with disabilities and large numbers of children in one family, single parent families... all of which
(perhaps with the exception of SWDs) she tends to equate with families, and thus
students, not valuing education. --> conflicting values.... so I guess in this case the
perceived need comes from conflicting values.... I think she sees her school as being in
a cycle... her students are performing low in national tests, the families of the students
and the students themselves don't see this as important, they will continue to perform
poorly.... unless they can find a solution.... so in this case the perceived need (low
performance in national testing) and the conflicting values are all rolled up into one big
system.... she hasn't mentioned it but there is also the self-reinforcer of ‘you've done
poorly and thus thinking you can’t do any better’ - self attribution theory.... so if we try
to take another step out of this one, a bigger picture view it is cycles of low
achievement(?).... so it's an underachieving cycle(???)... and this teacher is seeking
solutions in games to try to break that under achieving cycle.

Looking at it with a fresh pair of eyes, I do think the bigger category is Perceiving
Need and tangled up in that category is the conflicting values which arise from
differing expectations and other things which I will need to explore.... but these
perceived needs are often complex webs / systems of things that all interact with each
other.... so I think they will be useful to explore on a participant by participant basis
and then look for patterns.

So maybe I should have a go at defining perceiving need in terms of my research.
Here's an attempt: Perceiving need is a number of factors that the participant thinks are
significant that lead to the participant deciding that they want/need to take action to
mitigate the effects of these factors. These factors may be interrelated and may form
complex systems/webs or even cycles.

Some dictionary definitions of perceive and need:

perceive - to become aware of or know

need - circumstance in which something is necessary or requires some course of action
- a motivating force that compels action for its satisfaction - a lack of something
requisite or desirable or useful (Merriam Webster), a condition requiring supply or
relief (Merriam Webster) - something required or wanted (answers.com). A lack of a
need would result in a clear negative outcome such as dysfunction or death
(wikipedia)

So, combining these, we get:

**Perceiving need:** The participant becoming aware of circumstances that they believe require action to improve the schooling experiences of their students to enable their students to participate fully in society now and in the future. These circumstances may interrelate and form complex systems/web/cycles.

In my interviews, the teachers are using games in some effort to address some of these circumstances. Furthermore, many of these perceived needs arise from conflicting values.

**Focus for future interviews:**

What I probably haven't covered off on too much in my interviews is how the participant "becomes aware" of these circumstances... I've probably focussed more on the circumstances themselves... Having said that, based on my own experiences I could probably build a picture of how they come to these conclusions... however, this may be useful to explore in future interviews.

**Back to perceiving needs**

I guess I'm starting to think about the types of evidence of need that teachers rely on to make these judgements. In Jennifer Hilmes case she talks about "being a national partnerships school" which relies on results from national testing data. In Jinny Reutzel's case she is being a little more subjective in that she is making assumptions about her children's expectations of school and how the students want to learn... so I guess there are objective and subjective perceptions, however, I don't think it necessarily follows that objective perceptions are “better” in that one could argue that the national testing is biased and doesn't reflect a good range of what is being taught in schools and what is important to teach in schools.... so rather than classifying as objective and subjective needs, might be better to look at types of needs... although it is interesting to explore how the teacher develops this perception... I guess it's a combination of:
- how the school views their students (conversations between teachers | conversations with school administration)

- their experiences with their students (enthusiasm | behaviour | expectations) - *I should be able to get this from my data*

- interactions with parents (pushing school to achieve | apathy | supportive | negative)

- test scores

Let’s look at the things that have been put into this category so far:

- circumstance: low socio economic background and is indicated by large number of siblings in families --> results in education, schooling only being valued as babysitting --> results in low literacy --> children not being exposed to literacy at home esp. not early literacy (looking at letters, etc.) --> not having great IT equipment at home.

- circumstance: low results on national testing --> government perceives the school as needy --> gives the school more resources for three years and more power to hire who they want. This doesn’t acknowledge the low socio economic nature of the area and other underlying social problems indicated.
Appendix 5.

Sample focus group outline

In the early development of the game, play-tests and focus groups were conducted with a local school. In this appendix we provide an example of a focus group outline. The information collected from these focus groups was used to develop game features.
Feeling Safe – Child Safety Game
Format of Focus Groups / Interviews

Semi-structured focus groups or interviews will be conducted with participants on a fortnightly basis. The feedback given during each session will guide the development of the Feeling Safe child safety game. In game design terms, these focus groups and interviews are known as play-testing. The artefact that the children will be asked to interact with and the questions they will be asked will be different for each play-testing session. Each play-testing session aims at addressing risks in the game’s design. Below is the proposed outline for the first play-testing session.

Date: 26 August 2010
Time: 2 pm
Location: <<Name removed>>
Participants: Year 5 students

<table>
<thead>
<tr>
<th>Title &amp; Stimulus artefacts</th>
<th>What we are trying to find out</th>
<th>Questions to ask</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Games in general</td>
<td>Types of games that appeal to the age group.</td>
<td>Do you play computer/video games? What devices do you use to play games (indicate on a sheet of paper)? What do you know about computer games? What qualities do you think a good game has? How do you know you have found a game you will enjoy playing? What sorts of things would you do in a game you like? Do you play computer/video games with anyone? Who do you play computer/video games with? What do you know about games that are designed to help you learn? What qualities do you think a good learning game has? How do you know you have found a learning game you will enjoy playing?</td>
<td>4 participants – 2 boys and girls in year 5 at Chancellor State College</td>
</tr>
</tbody>
</table>

Colleen Stieler-Hunt
<table>
<thead>
<tr>
<th>Title &amp; Stimulus artefacts</th>
<th>What we are trying to find out</th>
<th>Questions to ask</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>What you’re good at sheets</td>
<td>The sorts of things that children think they are good at. These may be used in the game.</td>
<td>What sorts of things would you do in a learning game you like?</td>
<td></td>
</tr>
<tr>
<td>Places you spend time</td>
<td>In the game, we want children to choose trusted adults from home, school and one other place. We are trying to come up with a list of these places to include in the game.</td>
<td>What are your friends good at?</td>
<td></td>
</tr>
<tr>
<td>A specific learning game</td>
<td>Examine the qualities of a game that all of the students like playing</td>
<td>In a normal week, what sort of places do you spend your time other than at school and at home (eg. clubs, friends places, etc.)</td>
<td></td>
</tr>
<tr>
<td>HOMEWORK</td>
<td>The sorts of things that children think they are good at. These may be used in the game.</td>
<td>(NOTE: This will only be used if there is a game that all participants have played) Is there a learning game that we all like playing? (If yes) Is there a game that we all like playing? What do you know about this game? What qualities does this game have? How do you know you enjoy playing it? What sorts of things do you like doing in the game?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ask students to complete several sheets and return them to school office:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• My friends think I’m good at</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• My family think I’m good at</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• I am good at</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title &amp; Stimulus artefacts</td>
<td>What we are trying to find out</td>
<td>Questions to ask</td>
<td>Participants</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------------</td>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>The types of computer games the children's parents played as a child.</td>
<td>• Computer/arcade games my parents played as a child</td>
<td></td>
</tr>
</tbody>
</table>

**Other Materials:**

- Name tags
- Stickers
- Notes to take home
- Pens
Appendix 6.

Sample play-test outline

Play-tests were conducted with 2 schools. In this appendix we provide an example of a play-test outline that was used to conduct a play-test with the school play-testing the pre-release beta version of the game.
Appendix 6

Orbit Play-test 8.
08/07/2013

Research Group

Purpose of this session:
- To help the game designers understand changes that need to be made to the Surveillance Footage mini-game.

Context
- The Surveillance Footage mini-game is one of four mini-games that students encounter as they play the game.
- The students in the class have demonstrated varying abilities to use the game. Some have encountered considerable frustration whilst some encountered none at all. Some students have completely finished the game (all five chapters), whilst others are still at the beginning of chapter 3.
- The Surveillance Footage mini-game has three levels that occur during chapter 4.

About the session

In this session you will observe and take notes on students playing the Surveillance Footage mini-game. The students you will be working with will be a mixture of those who have experienced serious difficulties playing the game and some that are approximately progressing at the middle of the class. Those that are at the middle of the class are naturally at chapter 4 and those that have had difficulties have had their progress bumped forward.

Students:
- Student 1 name (currently up to the beginning of chapter 4)
- Student 2 name (skipped to beginning of chapter 4)
- Student 3 name (skipped to beginning of chapter 4)

Session overview

<table>
<thead>
<tr>
<th>Section</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discussion:</td>
<td>• To find out what the students understand about the game’s story.</td>
</tr>
<tr>
<td>Overview of the</td>
<td>• To provide the students who have had their game progress moved forward with information about the section of the game they missed.</td>
</tr>
<tr>
<td>game story so far 1</td>
<td></td>
</tr>
<tr>
<td>(10 mins)</td>
<td></td>
</tr>
<tr>
<td>2. Game-play: students</td>
<td>• To observe problems students encounter with playing the mini-game.</td>
</tr>
<tr>
<td>play the</td>
<td></td>
</tr>
</tbody>
</table>
### Section 1. Discussion (10 mins)

Explain that we are going to be looking at a particular section of the game today and that some of the students have had your progress jumped forward so that you can see how they go with this new mini-game. We are going to have a chat about what has happened into the game up until the beginning of chapter 4 so that those who haven’t finished playing chapter 3 can catch up. Use a set of printed game images to help talk about what happened in the game until the end of chapter 3.

<table>
<thead>
<tr>
<th>mini-game (40 mins)</th>
<th>3. Discussion: Reflection on the mini-game (10 mins)</th>
<th>To gain more information from students about playing the mini-game - information that could inform making changes to the game to make it simpler to play.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tell me about this character (picture of Sammy). Sammy, main character, Sammy has a secret she is scared to tell others about (do they know what it is?).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Tau find some goggles, so we _________ play the Speak Up game with our trusted adult.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. This happens at the beginning of chapter 3. What is happening? Sammy is saying she doesn’t want to talk to Tau again.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Then we _________ take the game for Sammy to play.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Then, Tau asks us to _________ beam aboard a trusted adult.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Next we _________ keep training Sammy’s need to tell machine.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If time, ask: What do you think the Speak Up game is about? If time, ask: What do you think the Need to Tell Machine game is about?

7. After Sammy has finished playing the Speak Up game herself, then ________ she decides she wants to talk to Tau.
   Ask: What do you think they talk about?

8. Ship gets brighter because Sammy & Tau have reconnected.
   Tau asks you ________ to take the video unscramble to Rho.
   And that brings us to the beginning of chapter 4. Any questions?

**Section 2. Game-play (40 mins)**

Show video camera and explain that we are also doing screen recording. Before starting, ask players to “think out loud” when they are playing so we can hear:

- Choices
- Uncertainties you have while playing

You can do the “junior scientist” thing if you want. Rachel, I’ve got footage of this, if you’d like to see how Amy does it.

Students play the game.

If at any point the students get stuck, let them go for a little while but you can help them if they seem really stuck. If this happens, ask them some questions about their thinking first. Some ideas are:

- What are you trying to do in this game?
- What bits of the footage have you changed so far? Why did you make those changes?
- Tell me what the different sections of the screen are. Tell me what the different icons on the footage mean.
- What do you have to do now?

**Section 3. Discussion (10 mins)**
Questions about the “Surveillance Footage” minigame

- Overall, what are your thoughts about the “Surveillance Footage” mini-game? (show pictures of the mini-game)
- What were your thoughts about the game play (what you do in the mini-game)?
- Were you able to learn to play the mini-game quickly?
- What is the aim of the mini-game?
- How would you describe the mini-game to someone who has never played it before? What would you tell them?
- Now that you have played the mini-game, is there any information that would have been useful to you before starting?
- Is there anything that you did not like about the mini-game? If so, what?
- Was anything confusing? Please take me through what you found confusing.
- What is the mini-game about?

If time, ask these questions about the overall game:

- Are there goodies and baddies in the game? [most important question]
- Is Sammy male or female?
- Tell me what you can remember about the overall game story?
- Who are the characters in the game?
- What is the game about?
- How would you describe the game to someone who never played it before (friends or parents)? What would you tell them?
Appendix 7.

Orbit Teachers’ Guide

Colleen Stieler-Hunt, Laura Scholes, Lisa Mclean, Renai Mclean and Alexandra Sharp


Notes
The guide has been downloaded and reproduced from the Orbit website. The page numbers have not been changed as this document has its own table of contents. The header “Appendix 5” has been added to each page.
# Contents

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Introduction

What is Orbit?
Orbit is a free child sexual abuse prevention program targeted at students in year 4 (children aged 8 – 10). Child sexual abuse is a significant societal problem. Access Economics (2007) estimates the impacts of child abuse and neglect costs the Australian community tens of billions of dollars each year. In addition, sexual abuse can have strong emotional, psychological and social impacts on those that are abused, their families and their social network.

The Orbit program consists of a computer game as well as resources for teachers, parents and adults in the community. Teacher resources include:

- the Orbit Teachers’ Guide which contains game information and lesson plans to accompany each chapter of the game
- a series of additional classroom activities available from the Educators section of the Orbit website www.orbit.org.au/educators

The Orbit website also contains information about the key concepts addressed by the game and provides parents/caregivers ideas for discussing these concepts with their children. See www.orbit.org.au/families

To play Orbit, simply download and install the game from the Orbit website and sign up for a free teacher account. See www.orbit.org.au/play

From the teacher account, you can create logins for your students.

The program is divided into five separate chapters and it is suggested that teachers allow 1 – 2 weeks to complete each chapter and associated classroom activities.

The key concepts addressed by the game are trusted adults, healthy self concept, public and private spaces, private body parts, the body rules, “need to tell” situations, barriers to telling, offender tactics, tell & keep on telling and modes of communication.

Orbit was designed by the University of the Sunshine Coast with financial and in-kind support from the Telstra Foundation, Queensland Police Service, Daniel Morcombe Foundation and Sunshine Coast Cooloola Services Against Sexual Violence Inc.

Nervous about implementing a child sexual abuse prevention program?
Educators report feeling concerned about teaching child sexual abuse prevention programs (Brown, 2008; Goldman & Grimbeek, 2008; Mathews, 2011; Scholes, 2000, Walsh, Farrell, Schweitzer & Bridgstock, 2005). The Orbit program is designed to help teachers have these important conversations about sexual abuse with their students in a less confronting way.

Classroom teachers are perfectly positioned to implement child sexual abuse prevention programs because perpetrators are usually someone known to the child and their family (Richards, 2011) and teachers are a constant adult in children’s lives without a strong connection to their family. Furthermore, statistics tell us that in a class of 30 students it is likely that at least one student will experience some form of sexual abuse in their life (Sanderson, 2004).

Below are a few points to consider when implementing the program:

1. **Allow students to opt out of the program** – A small number of students may feel uncomfortable participating in the program due to the subject matter. That is okay. We suggest you allow them to opt out even if they are part way through the program. Students are a good gauge of their own maturity levels. They may come back later of their own accord. They may also learn about the concepts raised in the game from the other students. There are many reasons why a child may opt out of the program. Some children may opt out because it triggers their own experiences of abuse; however it should not be
assumed that because a child opts out of the program that they have been abused.

2. **Laughter is okay** – During class discussions, some students may start laughing as their way of coping with the information presented to them. This is normal. Laugh along with the students. Acknowledge that talking about these things can seem funny. Allow them time to settle and then resume the discussion.

3. **Addressing concerns about “rude” game content** – Generally, children are taught to not talk about “rude” things. Whilst the game is not sexually explicit, some students and their parents may feel that some of the game content is inappropriate and concerning. Unfortunately, concern about discussing “rude” topics also works in the favour of perpetrators of sexual abuse. If students are concerned about anything raised in the game. Be honest with your students and express your concerns too. If children seem to feel fearful after playing the game, help them understand that most adults will not sexually abuse children. The reason that they are playing this game is so that they will know what is okay and what isn’t and when they should turn to their trusted adults for help. Also explain that sexual abuse is never the child’s fault; and if it does happen, the child needs to tell their trusted adults exactly what is happening so that the trusted adult can help them.

**Things to expect as a result of doing this program**

Sexual abuse prevention programs can prompt children to disclose sexual abuse to adults in their life. Be prepared. Make sure you know your school's policy on what to do if you receive a disclosure of sexual abuse. Also, familiarise yourself with how to respond to a disclosure on the Orbit website (see www.orbit.org.au/csa/disclosures/). You may also like to cut out the helpful list of phrases wallet card on the back of the Orbit trusted adult slip (see www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf) and keep it somewhere you can refer to.

**Getting started with Orbit**

Before getting started we recommend you obtain permission from your school Principal. We also suggest you provide an information session for parents and send home consent forms prior to running the program. Your students will need access to individual computers with uninterrupted access to the internet to play the game. If you wish to, you can also allow your students to access the game at home.

The system requirements for computers running Orbit under the Windows Operating System are:
- 2.33GHz or faster x86-compatible processor, or Intel Atom™ 1.6GHz or faster processor for netbook class devices
- Microsoft® Windows® XP, Windows Server 2008, Windows Vista® Home Premium, Business, Ultimate, or Enterprise (including 64 bit editions) with Service Pack 2, Windows 7, or Windows 8 Classic
- 512MB of RAM (1GB recommended).

The system requirements for computers running Orbit under the Mac Operating System are:
- Intel® Core™ Duo 1.83GHz or faster processor
- Mac OS X v10.6, v10.7, or v10.8
- 512MB of RAM (1GB recommended).

Furthermore, it is recommended all computers have speakers or headphones. If you have students playing the game simultaneously, then headphones are recommended. Two of the Orbit mini-games are designed for side-by-side play: two players sitting at the same computer. You may like to use audio splitters (allows you to plug two pairs of earphones into the one computer) for these mini-games. These can be purchased inexpensively from electronics’ stores.

**How to use this guide**

The learnings from the Orbit game will be stronger when facilitated by extra in-class activities. A number of these have been provided below. Supplementary lesson plans and classroom activities are also available from the Educator’s section of the Orbit website. See www.orbit.org.au/educators.

In many lesson plans, precise phrasing is given for asking questions and responding to the class. Since this subject can be confronting for some to teach, this format has been used to help teachers. However, it is not
expected the teacher will necessarily repeat these word-for-word as it appears in this guide. Feel free to modify the wording as feels natural to you and adapt the lesson plans to your context.

In Appendix 1 you will find instructions on how to administer Orbit. This includes instructions for setting up your class. Appendix 2 includes all of the Printable Materials required to run the classroom provided in this Teachers’ Guide.

Links:
Orbit for Educators - www.orbit.org.au/educators
Orbit for Families - www.orbit.org.au/families
Sign up for an Orbit account - www.orbit.org.au/play

References


Scholes, L. (2000). A study of the level of protection provided by Queensland educators for children at risk of abuse and neglect, Masters Thesis, School of Justice Studies, Faculty of Law, Queensland University of Technology.

## Overview of Program

### Before starting

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Notify parents/caregivers of program</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td>Collect consent forms from students and parents/caregivers</td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>Pre-program Evaluation Activities (if part of University trial of game)</td>
<td></td>
</tr>
</tbody>
</table>

### Chapter 1. Togetherness (1 hour 40 mins)

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Play prologue &amp; chapter 1</td>
<td>1 hour of individual computer access</td>
</tr>
<tr>
<td>1-2</td>
<td>Private Body Parts &amp; the Body Rules</td>
<td>40 minute lesson</td>
</tr>
</tbody>
</table>

### Chapter 2. Listening (1 hour 40 mins)

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Play chapter 2</td>
<td>1 hour of individual computer access</td>
</tr>
<tr>
<td>2-2</td>
<td>Trusted Adults</td>
<td>40 minute lesson</td>
</tr>
</tbody>
</table>

### Chapter 3. Understanding (2 hours)

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Play chapter 3</td>
<td>1 hour 40 minutes of individual computer access</td>
</tr>
<tr>
<td>3-2</td>
<td>Need to Tell Machine debrief</td>
<td>20 minute discussion</td>
</tr>
</tbody>
</table>

### Chapter 4. Belief (1 hour 40 mins)

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-1</td>
<td>Play chapter 4</td>
<td>1 hour 20 minutes of individual computer access</td>
</tr>
<tr>
<td>4-2</td>
<td>Speak Up mini-game debrief</td>
<td>20 minute discussion</td>
</tr>
</tbody>
</table>

### Chapter 5. Courage (1 hour 20 mins)

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-1</td>
<td>Play chapter 5 &amp; Epilogue</td>
<td>1 hour of individual computer access</td>
</tr>
<tr>
<td>5-2</td>
<td>Orbit Debrief</td>
<td>20 minute discussion</td>
</tr>
</tbody>
</table>

### After the program

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-1</td>
<td>Post-program Evaluation Activities (if part of University trial of game)</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 1. Activities

<table>
<thead>
<tr>
<th>Chapter 1. Togetherness</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1. Play prologue &amp; chapter 1</td>
<td>1 hour of individual computer access</td>
</tr>
<tr>
<td>1-2. Private Body Parts &amp; the Body Rules</td>
<td>40 minute lesson</td>
</tr>
</tbody>
</table>

1-1. Game Play – Prologue + Chapter 1

(1 hour of individual computer access)

All students are to play all of the Prologue & Chapter 1 of Orbit. Before they can get started, you will need to create a game account for each student. See Appendix 1. Administering Orbit section for more information.

The game-play can be done over a number of sessions – it does not have to be done in one sitting.

To find out what happens in the Prologue and Chapter 1 you can either play these sections of the game yourself or check out our descriptions of the game on the Orbit website.

In each chapter the students are asked to teleport a trusted adult on-board the space-ship. During each session of Orbit game play, please have trusted adult slips (see www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf) available for students to complete.

Links:
Chapter 1 - http://orbit.org.au/chapter/1-togetherness/
1-2. Private Body Parts & the Body Rules

At the end of this lesson students will be able to:

- identify the anatomical names for private body parts
- state the body rules.

These learning objectives are related to the following Orbit key concepts:

- Private body parts
- Body rules

Sections of Orbit related to this lesson:

Robot Factory Mini-game: We first meet the robot factory mini-game in chapter 1.

Students should have independently completed chapter 1 of the Orbit game prior to this lesson which includes playing the robot factory mini-game.

What’s on for today?

In this lesson students learn the anatomical names for private body parts and they learn about the body rules.

Lesson at a Glance

<table>
<thead>
<tr>
<th>Time Required</th>
<th>Activity</th>
<th>Materials</th>
</tr>
</thead>
</table>
| 20 mins       | 1. Private body parts     | • 1 computer + projection device (e.g. data projector / big screen) to revisit elements of the game-play with the class  
• whiteboard + marker pens  
• print one copy of the anatomical names of the private parts (See Printable Materials section) or PowerPoint file (see Downloads)  
• blue tack (not required if using PowerPoint file)                           |
| 20 mins       | 2. The body rules         | • 1 computer + projection device (e.g. data projector / big screen) to revisit elements of the game-play with the class |

40 mins

Downloads

Private parts slides

1-2. Lesson Activities

1. Introducing private body parts *(20 mins)*

**REPLAY** *(5 mins)*
Replay level 1 of the Robot Factory mini-game.

**TEACHER’S NOTE**
To replay a mini-game, you choose the mini-games button at the top left of the game screen. See the *I/my students want to replay a mini-game level* section of the *Administering Orbit* appendix for more information.

**ASK** *(15 mins)*
1. **In the game, what are the non-private parts of the robots’ bodies?** Possible responses include: arms, legs, face, stomach.

2. **What are the names of the non-private parts of people’s bodies?** Possible responses include: arms, legs, face, stomach, neck, hand.

3. **In the game, what are the names used for the private parts of the robots?**

   Answers:
   - mouth
   - chest
   - area covered by the underpants

4. **People have private parts too. Just like an arm or a leg, these are important parts of our body. How are robots’ private parts similar to people’s private parts? How are they different?**

   Encourage all responses but try to draw these out:
   - Similar: People have mouths/chests/areas covered by underpants.
   - Different: For people, boys and girls have different private parts. The chest is not a private part for boys.
• Different: We use different names for our private parts.

5. **How do you know a body part is private?**
Types of responses to draw out include:
• It is the parts of your body that are covered by your swim suit. However, the mouth is a private part too even though it is not covered by a swimsuit.
• Body parts that other people should not touch although there are some times when doctors or caregivers may need to touch private body parts.
• There are different private parts for boys and girls. Discuss that the chest area is not a private part for boys.

6. **What are the names of people’s private parts?**
Draw a table on the board like this (or use the PowerPoint file provided).

<table>
<thead>
<tr>
<th>Private Parts</th>
<th>boys</th>
<th>girls</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Lips" /></td>
<td><img src="image" alt="Boy" /></td>
<td><img src="image" alt="Girl" /></td>
</tr>
<tr>
<td><img src="image" alt="Eyes" /></td>
<td><img src="image" alt="Boy" /></td>
<td><img src="image" alt="Girl" /></td>
</tr>
<tr>
<td><img src="image" alt="Genitals" /></td>
<td><img src="image" alt="Boy" /></td>
<td><img src="image" alt="Girl" /></td>
</tr>
</tbody>
</table>

Get the students to help you place the names of the private parts in the appropriate section of the table (The names are provided in the printable materials section of this document). The finished product should look something like this:
7. **Now, let's practice saying these words.**

Give students the opportunity to practice saying these words.

**TEACHER'S NOTES**

If students explain that they call the body parts something different in their family, discuss the need for anatomical names and the value of factual reporting of body parts and also explain how some body parts are called different things within families and how this can be confusing. For example bottom may be referred to as a butt, buttock, fanny (in the United States) etc.

You may also wish to introduce the concept of the “body rules” in this discussion too. If you allude to it, mention that you will do more on it soon but that the body rules mean that no one else should touch or look at their private parts.

2. **The body rules (20 mins)**

**REPLAY (5 mins)**

Replay any level of the Robot Factory mini-game until one robot has gone into the dressing room to affix its private parts and paint on its “clothes”.

<table>
<thead>
<tr>
<th>Private Parts Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boys</strong></td>
</tr>
<tr>
<td><strong>girls</strong></td>
</tr>
<tr>
<td><strong>mouth</strong></td>
</tr>
<tr>
<td><strong>mouth</strong></td>
</tr>
<tr>
<td>Not a private part for boys <strong>chests</strong></td>
</tr>
<tr>
<td><strong>nipples</strong></td>
</tr>
<tr>
<td><strong>bottom / anus penis &amp; testicles</strong></td>
</tr>
<tr>
<td><strong>bottom / anus vagina &amp; vulva</strong></td>
</tr>
</tbody>
</table>
ASK *(15 mins)*

1. The robot placed their own private parts on their body in a private dressing room. Why do you think that is?
   Types of concepts to draw out include:
   - privacy
   - all of your body belongs to you but private and non-private body parts (such as your arm) are treated differently
   - it is okay for you to touch your own body but generally, you should try to only touch your private parts in your own private space.

2. In the game, Tau talks about something called “the body rules”. What do you think “the body rules” means for these robots?
   Types of responses to draw out include:
   - No one except the robot touches their private body parts.
   - Robots touch their own private parts in private.

3. There are body rules for people too. What do you think they are?
   Take responses and then draft a class list of body rule. Write them on the board. Here is the type of concepts to include in your class list of body rules:
   1) I am the boss of my body.
   2) It is not okay for someone else to touch or ask to see your private parts unless:
      - a doctor or parent/carer is helping you keep your private parts healthy and clean if you cannot do it yourself.
      - a doctor or parent/carer needs to touch your private parts when you are sick. If a doctor needs to do this, your parent/carer would usually be with you.
   3) It is not okay to be forced to touch another person’s private parts.
   4) It is not okay for people to take or show me photos or videos of private parts.
   5) It is not okay for other people to show me their private parts.

How did it go?
Can students identify which parts of their body are private (including the mouth)? Did students learn the anatomical names of people’s private parts? Did students demonstrate an understanding of the body rules?
Chapter 2. Activities

<table>
<thead>
<tr>
<th>Chapter 2. Listening</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1.  Play chapter 2</td>
</tr>
<tr>
<td>2-2.  Trusted Adults</td>
</tr>
</tbody>
</table>

2-1. Game Play – Chapter 2

(1 hour of individual computer access)

All students are to play chapter 2 of Orbit. The game does not need to be played all in one session. However, before doing the trusted adults lesson, players should have teleported their second trusted adult onto the spaceship.

In each chapter the students are asked to teleport a trusted adult on-board the spaceship. During each session of Orbit game play, please have trusted adult slips (see www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf) available for students to complete.

Side by side play opportunity

Chapter 2 contains the Need to Tell Machine mini-game. This mini-game can be played with two people sitting at the one computer keyboard. This provides someone to talk with about their answers in phase 1 of the mini-game and in phase 2 each player can use two of the game control keys to make the game-play a little easier.

To find out what happens in chapter 2, you can either play the game yourself or check out our descriptions of the game on the Orbit website.

Links:
2-2. Trusted Adults

At the end of this lesson students will be able to:
• choose trusted adults based on the qualities of the relationship
• ask trusted adults to be a part of their safety network.

These learning objectives are related to the following Orbit key concept:
• Trusted adults

Sections of Orbit related to this lesson:
Teleporter: The player character uses the teleporter to choose their trusted adults in each chapter starting with chapter 1. In chapter 2, the player character finds out different ways to communicate with Sammy (modes of communication).

Students should have independently completed all of chapter 1 and have teleported in their second trusted adult in chapter 2 of the Orbit game prior to this lesson.

What’s on for today?
In this lesson students explore how the teleporters work in Orbit and consider what makes a good trusted adult. They construct their network of five trusted adults and consider ways to tell their trusted adults about the game.

Lesson at a Glance

<table>
<thead>
<tr>
<th>Time Required</th>
<th>Activity</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 mins</td>
<td>1. Trusted adults in Orbit</td>
<td>• 1 computer + projection device (e.g. data projector / big screen) to revisit elements of the game-play with the class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Trusted adult invitation, 1 per student (see printable materials)</td>
</tr>
<tr>
<td>15 mins</td>
<td>2. Choosing Trusted Adults</td>
<td>• 1 computer + projection device (e.g. data projector / big screen) to revisit elements of the game-play with the class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• whiteboard and whiteboard markers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A4 paper, 1 per student</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pens and pencils for students</td>
</tr>
<tr>
<td>13 mins</td>
<td>3. Telling Trusted Adults about Orbit</td>
<td>• whiteboard and whiteboard markers</td>
</tr>
<tr>
<td>40 mins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2-2. Lesson Activities

1. Trusted adults in Orbit (12 mins)

REPLAY & DISCUSS
Replay game on the big screen from the Orbit savepoint Chapter 1: Choose trusted adult 1 until the trusted adult has been teleported onto the ship. At various stages, stop to discuss or point out aspects of the game.

⚠️ TEACHER'S NOTE
You can replay the game from an Orbit one of the many Orbit save points. See the I want to move one or more students’ game progress backwards or forwards section of the Administering Orbit appendix for more information.

STOP 1. Stop once you get to the teleporter room (3 mins)

ASK
- Why are there three teleporters? Types of answers to draw out include: the three teleporters represent family, school and other areas of their life, if they choose trusted adults from each of those areas then they will always have someone to turn to no matter where they are.
- What are examples of people who could be asked to be trusted adults from each of the three groups (family, school and other)? Children seem to have more problems understanding the “other” category, so have a special focus this group. Types of people the students can think about including from this group are sport coaches, family doctor, friend’s parent, club leaders and other out of school activities.

STOP 2. Stop once this safety warning pops up. (2 mins)

SAFETY WARNING:
Only beam aboard trusted adults who do not break the body rules.

READ the safety warning aloud.

ASK
- What are the body rules? Go through some of the items that were discussed in the previous lesson. Types of responses may include: that you are boss of your body, it’s not okay for someone else to touch your private parts.
STOP 3. Use the avatar generator to create a trusted adult. (1 min)

Ensure the students know they can change the voice of the character by pressing the button.

STOP 4. Stop when this information box appears. (2 mins)

You can change your trusted adult at any time by pressing the Change Adult button at the top left of the screen whenever you are on the space ship.

READ the information box aloud.

ASK

- Why might you ever want to change a trusted adult? Types of responses to draw out include:
  - change class / school / sporting club / church etc.
  - they would prefer someone else
  - they can no longer contact them easily
  - they realise that person is not a safe person to be around.

STOP 5. Stop when the trusted adult code appears. (2 mins)

SAY

Your trusted adults can log in to the special trusted adults section of this game. To do this, you need to give them their “Adult Login Code”. Next time you play the game, you need to write down the log-in code on this sheet of paper. Then, you can give this piece of paper to your trusted adults and it tells them how to log in.

Hand out the Trusted Adult sheets (see Printable Materials section)
and discuss how to use them.

STOP 6. Using the change trusted adults button (2 mins)
Demonstrate the features of the change trusted adults button in the HUD.
  • Press the Change trusted adults button in the HUD

• A. Getting the login code again
  To bring up an adult’s login code again, click on the Get login code link under their name.

Then press OK

• B. Swapping to a new trusted adult
  Click on the adult you wish to change and choose Swap Trusted Adult

• C. Change a trusted adult’s appearance
  Get back into the Change trusted adult section and choose a trusted adult.
If you don’t want to make a new trusted adult but you want to change their appearance (maybe their hair style or what they’re wearing), you can click the Change Appearance button.

2. Choosing Trusted Adults (15 mins)

**ASK (5 mins)**

What do you think would make a good trusted adult?

Write a list of the students’ suggestions somewhere the whole class can see to create a bank of descriptive words and phrases to describe the qualities of trusted adults.

The types of phrases to look for include:

- Doesn’t break the body rules
- Believes me when I tell the truth
- Doesn’t make me feel bad about who I am
- Helps me make good friends
- Is available
- Is honest
- Is someone I can count on
- Is someone I know how to contact
- Listens to me
- Makes me feel like I belong
- Makes me feel safe
- Respects me
- Respects my family
- Stands up for me.

**CREATE (10 mins)**

Ask students draw an outline of their own hand on a sheet of A4 paper. Ask them to write the name of their first 2 trusted adults, one on the thumb and the other on the pointer finger.

**SAY**

By the end of Orbit, you will have chosen 5 trusted adults. The third one needs to be from somewhere other than school or family. The fourth and fifth can be from family, school or somewhere else. Decide who you want the last three to be and write their names on the remaining fingers.

Students can then personalize the hand by decorating it. Encourage students to take this home and hang it somewhere visible.
3. Telling Trusted Adults about Orbit *(13 mins)*

<table>
<thead>
<tr>
<th>REPLAY <em>(8 min)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASK</strong></td>
</tr>
<tr>
<td>Have you asked your trusted adults to be in your support network yet? Yes / No. If yes, what happened?</td>
</tr>
<tr>
<td>How do you think you could ask them?</td>
</tr>
<tr>
<td>Collect children’s ideas and write summaries of the ideas on the board. You may like to talk about this in terms of When, Where, Why, How, What (what you could say).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROLE PLAY <em>(5 mins)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Have one student and the teacher role play the child asking the teacher to be a trusted adult trying to take into account the summary ideas on the board.</td>
</tr>
</tbody>
</table>

How did it go?

Can students identify the qualities to look for in a trusted adult? Do students know that choosing their trusted adult is within their control and that they can be changed at any time?
Chapter 3. Activities

# Chapter 3. Understanding (2 hours)

<table>
<thead>
<tr>
<th>3-1. Play chapter 3</th>
<th>1 hour 40 minutes of individual computer access</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-2. Need to Tell Machine debrief</td>
<td>20 minute discussion</td>
</tr>
</tbody>
</table>

## 3-1. Play Chapter 3

*(1 hour 40 minutes of individual computer access)*

All students are to play all of Chapter 3 of Orbit. The game-play can be done over a number of sessions – it does not have to be done in one sitting.

In each chapter the students are asked to teleport a trusted adult on-board the space-ship. During each session of Orbit game play, please have trusted adult slips (see [www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf](http://www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf)) available for students to complete.

### Side by side play opportunity

Chapter 3 contains the Speak Up and Need to Tell Machine mini-games. The Speak Up mini-game is designed to be played with two people at the computer keyboard with one player taking on the role of the child player character and the other taking on the role of the trusted adult player character. It is highly recommended that this is played as a side-by-side, two-player game.

The Need to Tell Machine mini-game can also be played with two people sitting at the one computer keyboard. This provides someone to talk with about their answers in phase 1 of the mini-game and in phase 2 each player can use two of the game control keys to make the game-play a little easier.

To find out what happens in Chapter 3 you can either play these sections of the game yourself or check out our descriptions of the game on the Orbit website.

### Links:

- Chapter 3 - [http://orbit.org.au/chapter/3-understanding/](http://orbit.org.au/chapter/3-understanding/)
3-2. Need to Tell Machine debrief

At the end of this discussion students will be able to:
• explain what a “need to tell” situation is
• list the types of tactics offenders use.

These learning objectives are related to the following Orbit key concepts:
• Offender Tactics
• “Need to Tell” Situations

Sections of Orbit related to this lesson:
The levels of the “Need to Tell machine” mini-game played in chapters 2 and 3.
Students should have independently completed all of chapter 3 of the Orbit game prior to this lesson. This includes six levels of the “Need to Tell Machine” mini-game.

What’s on for today?
In this discussion students explore the key messages offered by the Need to Tell Machine mini-game.

Lesson at a Glance

<table>
<thead>
<tr>
<th>Time Required</th>
<th>Activity</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mins</td>
<td>Need to Tell Machine</td>
<td>• Print out of screenshots of the Need to Tell Machine mini-game (see Printable Materials section)</td>
</tr>
<tr>
<td></td>
<td>discussion</td>
<td>• Whiteboard and markers</td>
</tr>
<tr>
<td>20 mins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Need to Tell Machine discussion (20 mins)

Discuss (20 mins)
Show students the screenshots of the Need to Tell Machine mini-game (see Printable Materials section). You may like to put these up on the wall.

Ask
• What do you think this mini-game is about? OR What do you think this mini-game is trying to teach? Types of answers to draw out include: distinguishing between what you need to tell your trusted adults and what you don’t, working out which things are Need to Tell and which are Do Not Need to Tell.
• What did you have to do in phase 1, the quiz-type section, of this mini-game? Types of answers: Listen to some stories and decide whether they were Need to Tell or Do Not Need to Tell.
• What is a Need to Tell situation? Types of answers may include: a situation where someone is breaking the body rules. A situation where you are uncomfortable with what someone else is doing. Something you should tell your trusted adults about. A situation where an adult shows you their private parts. A situation where someone gets you to do something but it didn’t turn out to be quite what you thought it would be.
• Who should you tell about a Need to Tell situation? Types of answers may include: your trusted adults, your family.
• Is it still okay to tell your trusted adults about a Do Not Need to Tell situation? Yes.

**SAY**

Let’s move to Phase 2 of the Need to Tell Machine mini-game (second screenshot picture).

**ASK**

• What did you have to do in this part of the mini-game? Types of answers: let the unflagged stories go through to Sammy but send the flagged Need to Tell stories to the trusted adults. Sammy gets sad if flagged stories get sent to him/her.

• What do you think this part of the mini-game is about? OR What do you think this mini-game is trying to teach? Types of answers may include: Telling Need to Tell situations to a trusted adult. Adults are there to help children. Children don’t have to handle every problem on their own.

**SAY**

Show the end-of-level game screenshot (see Printable Materials). At the end of each level of the Need to Tell Machine mini-game, Rho would say something.

**ASK**

• What would Rho talk about? Types of answers: She would tell you the collective name given to the types of Need to Tell stories in that level.

• This picture here is about bribes. What were the other levels about? Write the ones that students remember on the board. Answers: tricks, secrets, coercion, no-one will believe you, grooming, make you think you wanted it and isolation.

• What can someone tell me about one of these? Try to draw out examples and definitions of some of them. What Rho says at the end of every level is provided in the Printable Materials section.

• If an adult breaks the body rules, why should a child tell their trusted adults? Types of answers: so that they can help them. It is not the child’s fault although the adult may want the child to think that so that the child won’t tell anyone about it, it is an adult’s job to keep children safe.

**ASK**

• Was there anything about this mini-game that made you feel uncomfortable or worried you or concerned you in any way? It is natural that students learning about abusive situations will become uncomfortable. Reassure them that you find it uncomfortable too. Also reassure them that most adults do not abuse children. However, it is good for children to learn about these things so that they can be aware.
How did it go?

Can students explain what a “need to tell” situation is? Can students describe some tactics offenders will use to prevent children from telling about abuse?
Chapter 4. Activities

<table>
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<th>Activity</th>
<th>Description</th>
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<tbody>
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<td>4-1.</td>
<td>Play chapter 4</td>
</tr>
<tr>
<td>4-2.</td>
<td>Speak Up mini-game debrief</td>
</tr>
</tbody>
</table>

4-1. Game Play – Chapter 4

(1 hour 20 minutes of individual computer access)

All students are to play all of Chapter 4 of Orbit. The game-play can be done over a number of sessions – it does not have to be done in one sitting.

In each chapter the students are asked to teleport a trusted adult on-board the space-ship. During each session of Orbit game play, please have trusted adult slips (see www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf) available for students to complete.

Side by side play opportunity

Chapter 4 contains the Speak Up mini-game. Speak Up is designed to be played with two people at the computer keyboard with one player taking on the role of the child player character and the other taking on the role of the trusted adult player character. It is highly recommended that this is played as a side-by-side, two-player game.

To find out what happens in Chapter 4 you can either play the game yourself or check out our descriptions of the game on the Orbit website.

Links:
Chapter 4 - http://orbit.org.au/chapter/4-belief/
4-2. Speak Up mini-game debrief

At the end of this discussion students will be able to:

- list the types of barriers to disclosing sexual abuse children may experience
- understand that despite these barriers, it is better to tell and keep telling a trusted adult until they are safe.

These learning objectives are related to the following Orbit key concepts:

- Barriers to Telling
- Telling & Keep on Telling
- “Need to Tell” Situations

Sections of Orbit related to this lesson:
The levels of the “Speak Up” mini-game played in chapters 3 and 4.

Students should have independently completed all of chapter 4 of the Orbit game prior to this lesson. This includes six levels of the “Speak Up” mini-game.

What’s on for today?

In this discussion students explore the key messages offered by the “Speak Up” mini-game.

Lesson at a Glance

| Time Required | Activity                          | Materials                                              |
|---------------|-----------------------------------|                                                       |
| 20 mins       | Speak Up mini-game discussion     | • Print out of screenshot of the Speak Up mini-game (see Printable Materials section) |
|               |                                   | • Whiteboard and markers                               |
| 20 mins       |                                   |                                                       |

Speak Up mini-game discussion (20 mins)

**DISCUSS (20 mins)**

Show students the screenshot of the “Speak Up” mini-game (see Printable Materials section). You may like to put these up on the wall.

**ASK**

- **What do you think this mini-game is about?** OR **What do you think this mini-game is trying to teach?** Types of answers to draw out include: that even if you’re scared to tell, you still should because your trusted adults can help you. If the first adult you tell does not believe you or help keep you safe, keep telling until someone does.
- **What sorts of reasons did the game give for these children not wanting to tell their trusted adults about what was happening?** Write the answers on the board. Types of answers: They were scared. They did not want to have to give up gifts or money that the adult had been giving them. They did not want to upset anyone. They thought no one
would believe them. They weren’t sure if what was happening was abuse. They thought it was their fault and they might get into trouble. They were scared the adult would get into trouble or that their family might break up.

- Ask students to come up with reasons why the child should still tell despite these reasons. Types of answers include: Nothing is more important than a child’s safety. Even if you are unsure if something is abuse you should still tell. Child abuse is never the fault of the child. An adult can help. Even if someone gets upset or angry a child’s safety is more important. Being scared is normal, but telling will help more in the long run. Everyone wants to be liked, but children deserve to be cared for and respected in ways that don’t break the body rules. Everyone likes to receive presents and money but being safe is more important than receiving presents and money. If your trusted adult doesn’t believe you, tell another trusted adult until someone keeps you safe. If the adult gets into trouble, then it is because they were doing something wrong, not because you did anything wrong, it is not your fault.

- **What happens at the end of each level?** Answer: The child tells their trusted adults what has been happening and their trusted adults believe them and help them. In one level (level 5), the child calls the Kids’ Helpline because no one would believe her.

---

**TEACHER’S NOTE**

If the students are particularly engaging in this discussion, you may not get to the end. Just get as far as you can within the 20 minutes.

---

**How did it go?**

Can students identify barriers to disclosing sexual abuse? Can students explain why they should tell about sexual abuse despite these barriers?
Chapter 5. Activities

**Chapter 5. Courage (2 hours)**

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<tbody>
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<td>1 hour of individual computer access</td>
</tr>
<tr>
<td>5-2. Orbit Debrief</td>
<td>20 minute discussion</td>
</tr>
</tbody>
</table>

**5-1. Game Play – Chapter 5**

*(1 hour of individual computer access)*

All students are to play all of Chapter 5 and the Epilogue of Orbit. The game-play can be done over a number of sessions – it does not have to be done in one sitting.

To find out what happens in Chapter 5 and the Epilogue you can either play the game yourself or check out our descriptions of the game on the Orbit website.

In each chapter the students are asked to teleport a trusted adult on-board the space-ship. During each session of Orbit game play, please have trusted adult slips (see [www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf](http://www.orbit.org.au/downloads/orbit-trusted-adult-slip.pdf)) available for students to complete.

Links:

**5-2. Orbit debrief**

At the end of this discussion students will be able to:
- describe the Orbit story and the key messages that the game presents.

These learning objectives are related to the following Orbit key concepts:
- “Need to Tell” Situations
- Barriers to Telling
- Offender Tactics
- Private Body Parts
- Tell & Keep on Telling
- The Body Rules
- Trusted Adults

Sections of Orbit related to this lesson:
This discussion debriefs the entire Orbit game.

Students should have independently completed all of chapter 5 and the Epilogue of the Orbit game prior to this lesson.

What's on for today?
In this discussion students reflect on the Orbit game and its key messages.

**Lesson at a Glance**

<table>
<thead>
<tr>
<th>Time Required</th>
<th>Activity</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mins</td>
<td>Orbit discussion</td>
<td>- 1 computer + projection device (e.g. data projector / big screen) to revisit elements of the game-play with the class</td>
</tr>
</tbody>
</table>

20 mins
Orbit discussion (20 mins)

DISCUSS (20 mins)

- Now that you’ve finished the game, tell me about the story.
- What did we find out happened to Sammy in the game? Types of answers: Sammy was being abused by Epsilon. Epsilon broke the body rules.
- When did we find out what happened to Sammy? Answer: during the Surveillance Footage mini-game.
- Replay each level of the surveillance footage mini-game discussing what happens in each level.
  - In level 1, we discover that an adult walked into Sammy’s room, locked the door, stayed in there for a little while and then came out.
  - In level 2, we discover that the same adult went into Sammy’s room, removed his/her panel revealing his/her private parts (which in Sammy is a bunch of wires) and took a photo of them.
  - In level 3, we discover that the same adult went into Sammy’s room and started a tickling game. At first the tickling was around Sammy’s monitor and Sammy was enjoying the game but then the tickling was in Sammy’s private parts. At the end he gave Sammy a teddy bear so s/he wouldn’t tell.

**TEACHER’S NOTE**
To replay a mini-game, you choose the mini-games button at the top left of the game screen. See the I/my students want to replay a mini-game level section of the Administering Orbit appendix for more information.

- Were you surprised when you found out what happened to Sammy and who did it? Most students answer “yes” here.
- What did you think of Epsilon when you first met him at the start of the game? Answer: He seemed nice and helpful. He gave us a phone.
- Why do you think he seemed nice? Types of answers: He was trying to seem nice so you wouldn’t find out that he was abusing Sammy. If he seemed mean you might start to suspect something was up.
- What happened to Epsilon at the end of the game? Types of answers: he was locked in his room, don’t know.
- What do you think might happen to Epsilon after the game is finished? Explore possibilities. These may include being kicked of the ship, saying he was sorry, going to jail.
- Do you think Sammy was okay at the end of the game? Why? Explore their thoughts on this. Typically students say something like, I think s/he is going to be okay because s/he told his/her trusted adults what was happening and they are going to help keep him/her safe. You may like to prompt further and ask who Sammy’s trusted adults were.
- What do you think is the key message we are supposed to take away from this game? Possible answers: it’s always okay to tell a trusted adult what is happening in your life. It is important to tell your trusted adults if something is bothering you. Other people shouldn’t touch your private parts. It’s important to have five trusted adults from different parts of your life.

How did it go?
Did students understand the key messages raised by the game?
Appendix 1. Administering Orbit

Administering ORBIT

www.orbit.org.au
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I want to create an Orbit teacher account

An Orbit teacher account is required to create one or more sets of class logins that are managed through that teacher account. Students belonging to the same class are also able to add to each other’s "I am good at" boards and visit each other’s spaceships.

A. Create a teacher account on the Orbit website

Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Choose to Sign up for a teacher account.

B. Enter your user details

Choose a username and password and enter a valid email address. There are a number of optional research questions you can fill in too. Completing those will help us in our research efforts around Orbit. When you’re done, press Register at the bottom of the screen.

! Note:
- A valid email address is required so that you can reset your password.
- You must choose a unique username (a name that has never been used in the game before). To help, we suggest you preface your username with an abbreviation for your school.
- The username and the password must be between 6 and 30 characters long.
- To preserve anonymity we also suggest you do not use your full name.

You should see a message telling you to check your email.
C. Check your email
Find the Orbit email and click on the activation link. Once you have done this, you have created your Orbit teacher account.

You can use the username and password you created to login to the game and play it yourself. If you wish to set up individual logins for your students, instructions can be found in the section titled I need to create Orbit logins for my students.

See Also:
I want to create Orbit logins for my students
I want to create Orbit logins for my students

A. Log into the teachers’ section of the Orbit website
Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Add your class (if you haven’t already done this previously)
In the Create New Class section, enter your class’s name and press Create Class.

C. Select your class
In the Classes section, select your class’s name
D. Add a student
On the right hand side of the screen, enter a **username** and **password** and press the **Add Player** button.

! **Note:**
- Ensure you record the username and password you allocate each student.
- You must choose a unique username (a name that has never been used in the game before). To help, we suggest you preface each username with an abbreviation for your school.
- The username and the password must be between 6 and 30 characters long.
- To preserve anonymity we also suggest you do not use the student’s full name.

If the user was added successfully you will see the name of the students appear in your list of users on the top right hand side of the screen.

Repeat Step D until you have added all of your students.

**See Also:**
- I want to change a student’s password
- I/my students want to replay a mini-game level
- I want to manually unlock mini-game levels for one or more of my students
- I want to manually unlock mini-game levels for the whole class
- I want to move one or more students’ game progress backwards or forwards
- I want to move the whole class’s game progress backwards or forwards
- I want students to move their own game progress backwards
- I want my students to visit other students’ spaceships
I want to change a student’s password

A. Log into the teachers’ section of the Orbit website
Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Select your class
In the Classes section, select your class’s name

C. Select the player
At the top right of the page, you will see the list of players you have added to your group. Click on the player’s name that you wish to change the password for.

⚠️ TEACHER’S NOTE
If you want to change your own password, just choose your login name from the top of the class list.

D. Change the password
Scroll to the very bottom of the screen and fine the Change Password section. Enter a new password in the New Password box and then press the Change Password button.
I want to replay a mini-game

Orbit has four multi-level mini-games that are introduced as the game’s story about Sammy unfolds.

Robot Factory mini-game

Need to Tell Machine mini-game

Speak Up mini-game

Surveillance Footage mini-game

Once the player has finished a mini-game level, this same level can be replayed at any time. This is also how additional mini-game levels that are not played in the game story can be accessed. In addition, the teacher can also manually UNLOCK mini-game levels for players.

(1) After logging into the Orbit game, press the Mini-games button at the top-left of the game screen.

(2) Select the mini-game to replay.

(3) Select which level to replay.

See Also:

I want to manually unlock mini-game levels for one or more of my students
I want to manually unlock mini-game levels for the whole class
I want to manually unlock mini-game levels for one or more of my students

A. Log into the teachers’ section of the Orbit website
Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Select your class
In the Classes section, select your class’s name

C. Select the player
At the top right of the page, you will see the list of players you have added to your group. Click on the player’s name that you wish to unlock mini-game levels.
D. Unlock the level

On the student’s summary page, you will see a heading “Unlock game levels”. Press the unlock button for the mini-game and level you wish to unlock. You can repeat this for each level you wish to unlock.

---

**TEACHER’S NOTE**

You can also do this for your entire class.

**See Also:**
- I want to manually unlock mini-game levels for the whole class
- I/my students want to replay a mini-game level
I want to manually unlock mini-game levels for the whole class

A. Log into the teachers’ section of the Orbit website

Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Select your class

In the Classes section, select your class’s name

C. Unlock the level

On the class’s summary page, you will see a heading “Unlock game levels”. Press the unlock button for the mini-game and level you wish to unlock. You can repeat this for each level you wish to unlock.

See Also:
I want to manually unlock mini-game levels for one or more of my students
I/my students want to replay a mini-game level
I want to move one or more students’ game progress backwards or forwards

This administration feature can be useful if you want students to replay a certain section of the game or move someone ahead because they have been away or if they are struggling with a certain section of the game. You can move the players’ progress temporarily for a certain period of time or permanently.

A. Log into the teachers’ section of the Orbit website

Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Select your class

In the Classes section, select your class’s name

C. Select the player

At the top right of the page, you will see the list of players you have added to your group. Click on the player’s name that you wish to move the game progress.
D. Move the progress

On the student’s summary page, you will see a heading **Story progress**. To change the player’s progress in the story, change the values in the **Set override to** dropdown box and the **for the next** dropdown box as appropriate and then press the **Apply Override** button.

**TEACHER’S NOTE**

You can set a change in progress permanently or change the progress temporarily for a period of 30 minutes, 1 hour, 2 hours, 4 hours, 24 hours or 7 days. If you choose a temporary option, each time the player logs in, their game will restart from the position you have set. After the time period expires, the player’s game progress will revert to the section of the game they were at prior to the override.

E. Story override set

You should see the **story override set** message.

Next time the player logs into the game, their progress will be moved. If the player is already logged into the game, they will need to close out and get back into the game.

**See Also:**

- I want to move the whole class’s game progress backwards or forwards
- I want students to move their own game progress backwards
- I want to remove a temporary override I applied to a player
I want to move the whole class’s game progress backwards or forwards

This administration feature can be useful if you want all students in your class to play a certain section of the game. You can move the class’s progress temporarily for a certain period of time or permanently.

**A. Log into the teachers’ section of the Orbit website**

Go to [www.orbit.org.au](http://www.orbit.org.au) using your web browser.

Click on the **Educators** link at the top of the page.

Click the **Login** button at the top right of the screen.

Enter your **teacher username** and **password** and press **Login**.

**B. Select your class**

In the Classes section, select your **class’s name**
C. Move the progress
On the class’s summary page, you will see a heading **Override story progress for whole class**. To change all players’ in the class progress in the story, change the values in the **Set override to** dropdown box and the **for the next** dropdown box as appropriate and then press the **Apply Override** button.

![Override story progress for whole class](image)

1. **TEACHER’S NOTE**
   You can set a change in progress permanently or change the progress temporarily for a period of 30 minutes, 1 hour, 2 hours, 4 hours, 24 hours or 7 days. If you choose a temporary option, each time the player logs in, their game will restart from the position you have set. After the time period expires, the player’s game progress will revert to the section of the game they were at prior to the override.

E. Story override set
You should see the **story overrides set** message.

![Override story progress for whole class](image)

Next time the members of the class log into their games, their progress will be moved. If the player is already logged into the game, they will need to close out and get back into the game.

**See Also:**
- I want to move one or more students’ game progress backwards or forwards
- I want students to move their own game progress backwards
- I want to remove a temporary override I applied to the whole class
I want to remove a temporary override I applied to a player

This administration feature can be useful if you have moved one or more students’ game progress forwards or backwards just so that they could see a particular section of the game. Moving a students’ game progress temporarily means that their game progress no longer saves. Removing the override sets the player back to where they were prior to your manual override and their game will save once more.

A. Log into the teachers’ section of the Orbit website
Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Select your class
In the Classes section, select your class’s name
C. Select the player
At the top right of the page, you will see the list of players you have added to your group. Click on the player’s name that you wish to move the game progress.

D. Remove the Override
Press the Remove mission override button in the Story progress section.

TEACHER’S NOTE
If you do not see a Remove Mission Override button it means that you did not set a temporary mission override for that player or the temporary mission override has expired.
I want to remove a temporary override I applied to the whole class

This administration feature can be useful if you have moved one or more students in the class game progress temporarily forwards or backwards. Moving a students’ game progress temporarily means that their game progress no longer saves. Removing the override sets the player back to where they were prior to your manual override and their game will save once more.

A. Log into the teachers’ section of the Orbit website
Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

B. Select your class
In the Classes section, select your class’s name
C. Remove the Override
Press the **Remove story overrides for all players** button in the **Override story progress for whole class** section.

If successful, you will see the **Story overrides set** message.
I want students to move their own game progress backwards

If students wish to revisit any part of the game they have already played, they can reset their progress backwards for 10 minutes themselves. Students cannot shift their progress forwards if they haven’t already played that part of the game, only their teacher can do that.

A. Start the Orbit game
Run the Orbit game using its icon.

B. Open the Orbit website
Don’t log into the game, click the open website button on the front screen.

C. Log into the website
The student enters their username and password and then presses the Login button on the web page.

D. Change progress
The student can select an item from the dropdown list and then press the Go button.

If the student runs the game within the next 10 minutes, it will restart from this position.
I want my students to visit other students’ spaceships

Your students can visit the spaceships of other students to see how other players have decorated their rooms. They can also add to their “I am good at” board.

A. Go the lounge room and choose “Visit a friend” button
From within the Orbit game, the student needs to go to their lounge room (top floor of the spaceship) and choose the Visit a friend button.

B. Choose the friend to visit
Click on the thumbnail of the classmate the student wishes to visit.

C. Click the spaceship again to go back to their own spaceship
Click the spaceship icon for the player to go back to their own spaceship.

See Also:
I want students to add to each other’s “I am good at” boards
I want students to add to each other’s “I am good at” boards

Players can add items to their own “I am good at” board or to the board of other players. To add to another player’s board they must first visit the other player’s spaceship.

A. Reveal the “I am good at” board
After logging into the Orbit game,

When in a spaceship’s lounge room click the “I am good at” board panel.

B. Add to the board
Press the add button.

Choose an item from the expanding lists.

C. Finished
You should then see the new item on the board.

See Also:
I want my students to visit other students’ spaceships
I already have an Orbit teacher login and I have been given a trusted adult code

This tutorial is designed for teachers who have been given a trusted adult slip and already have their login to the Orbit game or the Orbit website. Logging in as a trusted adult lets you add to the child’s “I am good at” board.

A. Log into the teachers’ section of the Orbit website

Go to www.orbit.org.au using your web browser.

Click on the Educators link at the top of the page.

Click the Login button at the top right of the screen.

Enter your teacher username and password and press Login.

D. Enter trusted adult code

At the bottom of the Orbit Control Panel, there is a Trusted Adult Code section.

If you have been given a link code, enter it in the Link Code box and then press the Link button.

Note: If you have not been given a link code, you cannot complete this step.
If the linking was successful, the page will refresh and part way down the page you will see the confirmation message.

See Also:

I am a trusted adult and I want to add to a player’s “I am good at” board
I already have an Orbit login and I have been given a trusted adult code

This tutorial is designed for adults who have been given a trusted adult slip and already have a login to the Orbit game or the Orbit website. Logging in as a trusted adult lets you see how the child is progressing in the Orbit game and lets you add to the child’s “I am good at” board.

A. Choose to sign up for a trusted adult account on the Orbit website

Go to www.orbit.org.au using your web browser.

Click on the Trusted Adults link at the top of the page.

Press the Log In button.

B. Enter trusted adult code

At the bottom of the Orbit Control Panel, there is a Trusted Adult Code section.

If you have been given a link code, enter it in the Link Code box and then press the Link button.

Note: If you have not been given a link code, you cannot complete this step.
If the linking was successful, the page will refresh and part way down the page you will see the confirmation message.

See Also:
I am a trusted adult and I want to add to a player’s “I am good at” board
I don’t already have an Orbit login and I have been given a trusted adult code

This tutorial is designed for adults who have been given a trusted adult slip by a child but do not currently have access to the Orbit game or the password protected section of the Orbit website. Logging in as a trusted adult lets you see how the child is progressing in the Orbit game and lets you add to the child’s “I am good at” board.

A. Choose to sign up for a trusted adult account on the Orbit website

Go to www.orbit.org.au using your web browser.

Click on the Trusted Adults link at the top of the page.

Choose to Sign up for a trusted adult account.

B. Enter your user details

Choose a username and password and enter a valid email address. There are a number of optional research questions you can fill in too. Completing those will help us in our research efforts around Orbit. When you’re done, press Register at the bottom of the screen.

! Note:
- A valid email address is required so that you can reset your password.
- You must choose a unique username (a name that has never been used in the game before). To help, we suggest you preface your username with an abbreviation for your school.
- The username and the password must be between 6 and 30 characters long.
- To preserve anonymity we also suggest you do not use your full name.
You should see a message telling you to check your email.

Create an account

Your account has been created, and an activation email has been sent to the email address provided. If it doesn’t arrive in your inbox, please check your junk mail folder.

C. Check your email

Find the Orbit email and click on the activation link. Once you have done this, you have created your Orbit trusted adult account.

Welcome to the Orbit Control Panel

You have successfully activated your account!

D. Enter trusted adult code

At the bottom of the Orbit Control Panel, there is a Trusted Adult Code section.

If you have been given a link code, enter it in the Link Code box and then press the Link button.

Note: If you have not been given a link code, you cannot complete this step.

If the linking was successful, the page will refresh and part way down the page you will see the confirmation message.

See Also:

I am a trusted adult and I want to add to a player’s “I am good at” board
I am a trusted adult and I want to add to a player’s “I am good at” board

This tutorial is designed for adults who already have a login to the Orbit website and have already added their trusted adult code to their Orbit account.

A. Log in to the Orbit website

Note: There are multiple ways to log into the Orbit website. This is just one of them.

Go to www.orbit.org.au using your web browser.

Click on the Trusted Adults link at the top of the page.

Choose to Log in for a trusted adult account.

Enter your username and password and press the Login button.

B. Select a player’s name

In the section headed Linked Children, each player you have linked your account to should be listed. Notes: If you do not see a section titled Linked Children, it means you have not yet added a player link code to your account. The names appearing in the list are the names that the player has given to their game character (in the screenshot the name is Freda) and your character (in the screenshot the name given to your game character by the player is Ms B).
C. Add to the player’s “I am good at” board
This will take you to a page that looks something like this:

![Image of the page](image)

In the **Leave new Good At message** section, select an item from the dropdown box and press **Send**.

![Image of the page](image)

Repeat this as many times as you like. If you were successful, you will see a screen something like this:

![Image of the page](image)

Next time the player checks their “I am good at” board, they will see the message that you left.

**Notes:** In this section you can see what chapter of the game the player is currently playing and click on a link to get more information about that chapter.
Appendix 2. Printable Materials
PLAYER NAME

has selected you to be one of his/her 5 trusted adults.

The adult login code will allow you to log into the Trusted Adult section of the Orbit website orbit.org.au/trusted-adults.

What is Orbit?
Orbit is a computer game that aims to protect children from and help them to disclose sexual abuse.

How did I get selected as a Trusted Adult?
The Orbit game asks the player to choose five different trusted adults (one per chapter of the game). At least one trusted adult must be from the player’s family, at least one person must be from the player’s school and at least one person must be from somewhere else. Having five people from different places means that the child will always have someone to turn to if they are having a problem.

What do I do with this code?
You can use your trusted adult login code to log into the Orbit website orbit.org.au/trusted-adults. Logging in gives you information about what the player is learning in the game and allows you to send the player self-esteem boosting messages. If you are trusted adult to more than one player, you can join this with an existing account.

More questions?
If you have more questions about Orbit please visit the game’s website www.orbit.org.au
Wallet Card

What to say when a child discloses:
• I’m glad that you told me this. It was brave of you to tell.
• You did the right thing by telling.
• It’s not OK for that to happen to you.
• You haven’t done anything wrong.
• I want to help keep you safe. We need to tell some other people so that we can try to keep you safe.

Remember:
• Do your best to stay calm.
• Be aware of your body language (e.g. try to look encouraging, not shocked or repulsed).
• Listen to the child.
• Set aside your own judgement.
• Don’t make promises that you can’t keep.
• Seek support for yourself afterwards.
• Don’t confront the perpetrator.
• Advise the appropriate authorities.
See [www.orbit.org.au](http://www.orbit.org.au) for more information.

Appendix 5

What to say when a child discloses:
• I’m glad that you told me this. It was brave of you to tell.
• You did the right thing by telling.
• It’s not OK for that to happen to you.
• You haven’t done anything wrong.
• I want to help keep you safe. We need to tell some other people so that we can try to keep you safe.

Remember:
• Do your best to stay calm.
• Be aware of your body language (e.g. try to look encouraging, not shocked or repulsed).
• Listen to the child.
• Set aside your own judgement.
• Don’t make promises that you can’t keep.
• Seek support for yourself afterwards.
• Don’t confront the perpetrator.
• Advise the appropriate authorities.
See [www.orbit.org.au](http://www.orbit.org.au) for more information.
Lesson 1-2.
Print and cut out the names of the private parts. (1 copy only)

- chest
- mouth
- mouth
- nipples
- bottom / anus
- bottom / anus
- vagina & vulva
- penis & testicles
Discussion 3-2.
Print the 3 screenshots of the Need to Tell Machine mini-game to use as visual prompts during the class discussion (1 copy only).
The "Need to Tell" stories in this training level were examples of bribes.

A bribe is when someone offers something like money, gifts or other treats so someone else will do what they want.

If someone ever tries to bribe you into breaking the body rules, tell your trusted adults immediately!
Discussion 4-2.
Print the screenshot of the Speak Up mini-game to use as a visual prompt during the class discussion (1 copy only).