Teaching Difficult Subjects in a Digital Society: Investigating the Application of Games and Technology for Inclusive Sex Education

by

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Abstract

Sex education in schools has become a topic of controversy in several Ontario communities since the launch, repeal, and re-launch of an update to the 1998 Health & Physical Education (H&PE) curriculum in 2015-2019. This research project investigates the relationship between children, education, technology and sexuality, with a focus on leveraging digital games for inclusive learning around difficult subjects that help to foster engagement and strengthen parent-teacher-student relationships. Various literature, pedagogical approaches, and game-based methods are analyzed, and a sex education game prototype, *Inclusafe*, is used as a test subject to establish a framework for digital game-based learning for difficult subjects. A new, remixed model is proposed, which the game is tested against, and recommendations are provided for future improvement. Although the focus of this paper is on sex education, the proposed model has potential to be reused and applied to the teaching of other difficult subjects.

Keywords: sex education, sexuality, games, technology, serious games, play, difficult subjects, pedagogy, education, children, inclusion, inclusive design

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Introduction

Sex education has been a topic of great controversy, discussion, and taboo for centuries. In Canada, the way sex education is taught varies across the country, from the age at which concepts are taught to the level of explicitness of the content at each grade level. In 2015, Ontario's Liberal premier, Kathleen Wynne, introduced a revised Health & Physical Education curriculum, almost 20 years following the last 1998 curriculum implementation. This new curriculum included a much more comprehensive sex education component, with considerable updates to the topics of sexual health and development and diversity, introducing new sections that discuss sexting, bullying, and consent. Due to the controversial nature of some of the new topics covered in this revised curriculum, including the introduction and use of correct terminology for body parts to kids at an earlier age ("What Ontario's new sex ed curriculum teaches in Grades 1 through 12"), some parents pulled their children out of school (Csanady), protests erupted, and there was an apparent disconnect between the claimed benefits of the new curriculum and the level of awareness and understanding amongst certain members of the community. Although much of the backlash from the 2015 curriculum was rooted in misinformation and uncertainty (McKay et al. 160), In 2018, Conservative premier Doug Ford took office and repealed the elementary curriculum to revive the 1998 version. Shortly afterwards, in 2019, Ford unveiled a new curriculum, strikingly similar to that of 2015 (Jones), which is taught in Grade 1-8 classrooms today.

The 1998 curriculum was first implemented at a time that predated Google, Wikipedia, YouTube, Twitter and Facebook — resources that today's youth use on a daily basis. Since children today have access to more information than they are acknowledged for, a new curriculum allowing for earlier sex education has potential to help contextualize the information which youth have already been exposed to through the internet, television, etc (Agrell and Picard). Just as culture continues to change, so should education systems, in order to help individuals adapt to their surroundings in response to shifts in demographics, technology, social mores, political movements, and other such key influences. Society and laws have also advanced and what may have been seen as unacceptable 15 years ago is the norm for many today. It is important that the school system adapts to these changes. Not only is preparing our kids a priority, but so is making them feel included and considered in the process. This is why a revised curriculum that ensures an inclusive and accessible approach – both in its consideration of parents as well as children – is so important and comes at a critical juncture in societal

changes. “Comprehensive refers to an evidence-based, secular curriculum that covers sexual and physical development, contraception, sexually transmitted infections, gender and sexual diversity, sexual decision making, and healthy relationships, at a minimum. The new Ontario curriculum meets this description” (Bialystok 17).

From 2014 to 2018, thousands of parents and 70 health organizations had been consulted about the revamped curriculum, 87% of Ontario parents considered the topics in the curriculum to be “important” or “very important” to teach in schools, public consultations showed that the majority of Ontarians support all the topics that had appeared in the 2015 curriculum in most of the same grades, and there was an overwhelming support among teachers for the more thorough, inclusive, and up-to-date content (McKay et al. 161).

The Sex Education Controversy

Despite the government’s focus on educating children with accurate and current information and providing them with skills and strategies to help them navigate a digital world and help keep them safe and healthy, sex education in schools has become a topic of controversy in several communities. In June of 2015, the Region of Peel released a “Myth vs. Fact” document for parents, after receiving criticisms in opponents’ letters that appeared to misunderstand or distort the curriculum’s content. According to letters circulated within the Peel Region and emails sent out to local news sources such as The Star (King), parents believed that students would learn to reveal and touch their private parts and others’ in Grade 1, be taught how to masturbate in Grade 6, receive instruction on anal sex play in Grade 8, be encouraged to become homosexuals by destroying the idea of heterosexuality, and be enticed to have sex at a younger age (*Myth vs. Fact* 1-3). Many parents in these communities also felt that they were not consulted on the curriculum, which the government claims is untrue, stating that the curriculum review process began in 2007, and that more than 4,000 parents were involved in the process, along with numerous students, teachers, schools, health centers/associations, and 70 health-related organizations (5). The controversy that resulted from the implementation of the updated curriculum caused many parents to pull their children out of school in protest (“Ontario Sex-Ed Protest 'Unlike Anything I've Ever Experienced,' Principal Says”), which ends up affecting the rest of their education and school experience, since the sex education – or the Human Development and Sexual Health – section accounts for less than 10% of the H&PE curriculum (*Myth vs. Fact* 6).

Problem Space

With the rapid advancement of technology and the increased popularity and use of the internet over the last few decades, various types of content that might be deemed “inappropriate” are now easily accessible by young children. The Internet has continued to grow since the beginning of its revolutionary impact on culture and society in the mid-1990s (Craig). The world 20 years ago was very different from the world today. This timeline puts the 1998 Health & Physical Education curriculum right at the beginning of the rise of near-instant communication through the Internet, only seven years after the first web page was ever created (Craig). Now, there are almost no boundaries over the way individuals interact and the kinds of things they are exposed to. Parental control is not what it used to be and is almost impossible with the myriad of ways and places that children can be exposed to information.

Understanding that children will likely be exposed to the topics covered – or not covered – in the curriculum whether parents like it or not, the challenge becomes making sure that kids are equipped with the right tools to consume, digest, and understand that information in and outside the classroom.

Research Goals

This Major Research Project (MRP) and proposed game-based recommendations address the concerns arising out of the revised Ontario sex-ed curriculum from 2015-2019. With the curriculum as a base, the insights gained from the literature, studies, theories, concepts, and approaches reviewed in this paper will be used to provide suggestions for digital game features that would effectively enable the augmentation of the learning experience of young children (ages 6-12, grades 1-6) by:

- helping facilitate more fulsome conversations with visual and other sensory aids,
- providing a safe, inclusive, and engaging approach to educating children through digital games, and
- allowing parents to feel control and comfort in their child’s education by allowing them to engage in their child’s learning.

The project aims to gather and compare examples of how we teach/learn using games and technology in different areas (such as STEM) within the primary context. This is done in order to

determine how we might better equip youth and the community with an inclusive tool that augments the comprehensive education needed to navigate the difficult and controversial space that sex education falls within. The data gathered from this research can be used to inform how to better sex education learning in both its delivery and absorption. Because teaching young children sex education is arguably the most difficult and controversial, the outcome of this research will focus on kids ages 6-12 (grade 1-6). Although individuals below the age of consent will not be actively or directly involved, the insights gathered from the literature involving parents, teachers, and children will inform the proposed “solution”.

The research effort will act as a building block for *Inclusafe* (Shalab Alsham), a digital game-based sex education prototype for children, within the target age group of this study, by identifying and testing specific criteria from the insights gathered to determine whether *Inclusafe* is indeed an effective Serious Game and tool for communicating with and educating children around a Difficult Subject. Recommendations and next steps will be provided based on the analysis outcomes, by outlining potential gaps and presenting considerations for future iterations.

Background & Context

To help frame the context around this research and set the scene for the foundation on which this research will branch from, various literature focused on children, education, technology, and sexuality was reviewed, revealing their intersectionality and addressing the relevance of Difficult Subjects and important considerations for inclusion.

Education

In their paper focused on the role of gaming in linking early childhood education and indigenous education, Ukala and Agabi provided a comprehensive definition of education that helps to introduce this section, and lay a foundation for the rest of this research, well: “Education is a dynamic instrument of change. It is the bedrock of every society for meaningful development and growth. It is the vehicle for fostering natural growth, cohesion, and peaceful co-existence especially in a pluralistic society with diverse ethnic groups. It is the process of facilitating learning, knowledge, skills and values. According to Dictionary.com (2015) it is the process of imparting or acquiring knowledge, developing the powers of reasoning and judgement, and generally preparing oneself intellectually for mature life […] It assists in physical, mental, moral

and emotional development of the child" (17). The following sub-sections will attempt to breakdown education into categories that align with all of these features: sex education (fostering natural growth, peaceful co-existence, preparing for mature life, assisting the wholistic development of children), technology (facilitating learning, knowledge, and skills), and STEM-based education, an example model that ties all the aforementioned descriptors together. Halstead and Reiss argue that "schools have three distinct duties: to uphold the values of the broader society, especially where these have emerged through open debate and the democratic search for shared values; to fill in gaps in children's knowledge and understanding, including their understanding of core values; and to encourage children to pick a rational path through the variety of influences that impinge on their experience and to construct their own developing value framework through a process of critical reflection" (4). The following sub-sections expand on this expectation in relation to children's education, sex education, and technology use in augmenting learning.

Education, Children, and Sex

In Ontario, students have been receiving sex education since the 1940s ("A Look Back at Ontario's 1940s Sex Education Curriculum"). Today, sex education is part of the Grade 1 to 12 Health and Physical Education curriculum (H&PE), while it had originally been introduced to students in Grade 10 and higher in 1946. Although historians have largely overlooked the "everydayness" of sexuality in childhood in Canada, "history points to more complex relationships among youngsters, adult experts, and discourses of sexuality and […] sex education." The long-standing associations between childhood and innocence have contributed to the dissemination of inadequate and inaccurate information about children's bodies, resulting in silence and miseducation around sexuality. This, as a result, has produced fear, shame, and vulnerability in many young people, rendering them more vulnerable to abuse by adults and other children, despite the efforts of society to maintain the "innocence" of children (Gleason 35). Sex education, and the updated H&PE curriculum, can reduce misinformation and increase critical thinking, communication, and self-confidence in children (Haruna et al. 2). Despite some of the beliefs of protestors of the curriculum (Bialystok 20), these qualities in children, mainly their competence and sense of autonomy, develop through direct social and personal experience, not just through age and physical growth (Koller 2658) – "some of the youngest children can be among the most informed and confident" (Alderson 2281). This is echoed by the principles of the "new sociology of childhood" which identifies children as competent subjects

and knowledgeable “social actors” who are “relatively autonomous and have opinions about their lives and the issues that concern them” (Koller 2659). Therefore, age should be considered as more than a chronological number measuring time since birth; it is also social, and regardless of chronological age, “social age continues to influence the governance and experience of the young” (Gleason 36-37). When children are assumed as competent from the start, it acknowledges their agency and respects their rights (Koller 2659). Nevertheless, regardless of age, teaching is hard. “The act of teaching subjects such as race, gender, and sexuality, and doing so with a level of critical consciousness, thoughtfulness, and care presents even greater difficulty” (Whitley 1).

Education, Children, and Technology

Technology use among young children is consistently on the rise. Studies show that children are using technology and interactive media from a very young age (Zabatiero et al. 15). Since 2013, the amount of time that young children spend on mobile devices has tripled, with children under 8 years old spending an average of 2.19 hours a day with screen media (“The Common Sense Census: Media Use by Kids Age Zero to Eight, 2017” 16). On a typical day, 3 to 5 year-olds spend an average of 4 hours with technology (17). Additionally, a survey held in 2018 revealed that one third of Australian preschoolers, aged 0-5 years old, owned their own tablet or smartphone – similar to those reported by studies in the U.S., Europe, and Southeast Asia (Zabatiero et al. 15). According to the National Association for the Education of Young Children (NAEYC) and the Fred Rogers Center for early Learning and Children’s Media at Saint Vincent College, “technology use among preschool-age children is inevitable, and any attempt to eliminate technology use among young children would be futile and misdirected” (Daugherty et al., *Getting on the Same Page* 3). Common Sense Media’s report also highlights parents’ concerns around violence, sexual content, and advertising. Although 77% were concerned about sexual content, “67% of parents whose children use screen media say it helps their learning (a lot or a little)” (24). There is growing evidence that technology use can benefit young children by increasing engagement, boosting academic achievement, and contributing to socio-emotional development (Daugherty et al., *Getting on the Same Page* 3). Including technology in early childhood settings allows parents and educators to bridge school, home, and other learning environments (McClure et al. 9). through opportunities that technology use enables to support learning via exploration, interaction, communication, and creation – the conversation should shift from “should young children use technology?” to “how can we use technology with

young children to maximize its benefits?". Or, more specifically in the sex education context: How can we use technology to reduce misinformation, keep children safe, and promote/empower their growth and autonomy?

STEM-Based Education

As technology continues to evolve at a rapid pace, STEM aims to help children gain key skills and develop characteristics of innovative thinkers and problem solvers that are critical for an ever-changing world. Though referenced in the name, STEM is about more than just Science, Technology, Engineering, and Mathematics – it has become "a short-form label that includes a diverse set of 21st century skills and characteristics" that "fosters creativity, resiliency, 'grit' and communication" ("STEM 101: A Primer, What Is STEM?"). When examining the STEM landscape, a key finding revealed that "high quality educational media can support and extend school learning into the home and beyond" (McClure et al. 9). As an interdisciplinary and applied approach to education that helps children grow into well-informed, critical citizens prepared for a digital tomorrow (8), STEM can be broken down into a set of standards and guidelines that emphasize intentionality and autonomy through engagement, vocabulary, and reflection. "The more that we ask early childhood educators to continue doing what they do but do it intentionally, the more the child will continue to build new skills to count, observe, record what they are observing, and compare" ("Engaging Children in STEM"). There are takeaways from these STEM guidelines that can theoretically be applied and tested in the context of sex education:

- **Engagement:** Invite children to describe their observations and ideas, and facilitate children's use of tools to extend their explorations. Allowing the child to take the lead in their own learning by exploring in the concrete way they know how.
- **Vocabulary:** Introduce, use, and model key vocabulary in context, and allow children to describe and compare their experiences or observations to allow for deeper understanding.
- **Reflection:** Guide children to reflect on new understandings by allowing for reflective time to talk about what was learned ("What did I learn here? Why is this happening this way?"). This enables children to discuss and describe their experiences, which solidifies their learning.

In a video created by the Massachusetts Department of Early Education and Care (MDEEC), an educator emphasizes, “We need to teach children how to be more intentional in their own observations and explorations. So the more that we can make it an intentional part of the conversation with the child, the more that we make it explicit for them, then the more they can be aware of what they are doing and how they can build on that” (“Engaging Children in STEM”).

Recent evidence shows this STEM-based approach of teaching is just beginning to be explored in Ontario. In February of 2020, the Ontario Physical and Health Education Association (OPHEA) launched a four-part series that takes a deep drive into different areas of research shown to be connected to effective curriculum implementation. One of the findings of this research highlights intentional teaching practices which echo that of STEM-based education. “Intentional teaching involves H&PE teachers being purposeful and deliberate in our planning and actions with students. It’s about providing opportunities for deeper learning, supports for well-being and focusing on skills that affect students as they grow into adulthood” (“How Intentional Teaching Practices Can Build Student Motivation, Competence & Confidence in H&PE”). Intentional teaching challenges the “why” in teaching and keeps each student in mind, assessing where they are at and what they need. OPHEA lists the following requirements for intentional teaching:

- **Engagement** to bring learning alive
- Built-in **social-emotional** learning
- **Challenge** and **choice** to build competence
- Teaching models (like **game-based learning**) as powerful tools

Although sex education shares similar characteristics with other subjects taught in the school curriculum – transmission of information, contribution to the development of personal autonomy, and seeking to promote interests of both the individual and broader society – it is quite different in most other respects. Sex education is about the private, intimate life of the learner and is intended to contribute to their personal development and sense of well-being or fulfilment (Halstead and Reiss 3). Work needs to be done to emphasize and respect this difference while attempting to integrate it into existing models of teaching with technology.

Difficult Subjects

> "Most of us at some point, especially parents, have had to answer a really tough question from a child in our lives. For example, the big one, what is death? Or another one, why do some people have darker skin than other people?" – Rachel Martin (Turner).

It would be remiss to go about this research without considering the sensitive nature of sex education. Sex education is about human relationships, which includes a central moral dimension, and because sex education generally involves intense emotions that have to do not only with intimacy, pleasure, and affection, but often also with anxiety, guilt, and embarrassment (Halstead and Reiss 3), there is no doubt that sex education is a difficult subject to tackle, for parents, teachers, and anyone else faced with the expectation or opportunity to do so. For the purposes of this paper, Difficult Subjects will be defined as topics that are innately hard to grasp or difficult to explain, have been stigmatized, categorized as taboo/containing adult-themes, and that children are assumed to not be able to understand due to their chronological or cognitive age. A recurring topic that was found and labelled as a Difficult Subject is death. Linda Goldman describes it below:

> "Death is a difficult and sensitive topic to discuss with children. So often adults feel at a loss for words. Without knowing what to say or how to say it, many parents and professionals avoid children's questions. Some refuse to respond at all" (Goldman 7).

This rings true for topics related to sex and health education. Despite opponents of the new H&PE curriculum advocating that the role of sex education should fall solely on parents, few parents actually do a good job of "preparing their children for the sexual challenges of adolescence, let alone for caring, ethical, and fulfilling sex lives as adults" (Marshall). Comprehensive sex education requires trained educators, but it doesn't have to. The most common finding and recommendation for handling Difficult Subjects is to be clear and concrete in explanations, and to acknowledge children's questions with care, which is a valuable way of reassuring them and helping them feel safe by normalizing any uncomfortable ideas or feelings they may have (Goldman 7). Sesame Street developmental psychologist and SVP of education and research at Sesame Workshop highlights one of the common mistakes that adults make is not using the word "died" when referring to someone's death, and instead using euphemisms. "Passed away, you know, sorry for your loss. Went on a long, long journey. We put the dog to sleep […] If you're telling me now that the dog went to sleep and is not going to wake up and

died, well, I go to sleep every night. Am I going to die? [Mommy and Daddy], are you going to die?" (Turner). This not only emphasizes why it is important to use the actual word "died", but to be clear about what actually happens when someone does die. This approach is illustrated well in Dr. Kate M. Kelly's illustrated children's book, "The Big 'D': Explaining Death & Dying to young children" and aligns with the importance placed on proper vocabulary and intentionality in STEM.

Games and Play

Merriam-Webster defines game as an "activity engaged in for diversion or amusement", providing play as a synonym. Today, play constitutes a large part of educational work regarding children between birth to 10 years old, and "is an important activity in the life of [the child] and appeals strongly to children's engagement" (Lillemyr 4). In his book, *Children and Play: Understanding Children's Worlds*, Peter K. Smith lists a dictionary definition of play that very much aligns with what describes a game, as doing "something for fun, not in earnest," and that what differentiates a game from just play are the rules associated with games (Smith 4). Caillois and Barash (1961) and Huizinga (1971) defined a 'game' as an activity that is governed by rules. This is part of the root of much debate around the value of games and play in education. However, many theorists believe that children do gain benefits from playing, though instead of being clear and immediate, they are delayed – the strength and skills they are developing through play will be useful in adolescence and adulthood (Pellegrini and Bjorklund 23-24). Because learning about oneself, their bodies, minds, and the world around them is not limited to a specific chunk of their, but is an ongoing process, this theory makes sense not only in the context of sex education, but in the potential application of games and play in teaching and learning about sex, sexuality, health, race, and other intimate yet important topics. Through the gathering and analysis of studies reviewed in this paper, one thing was clear: although many approaches use "game" in their naming, there are nuanced and specific differences between them. For the purpose of this paper, it is important to define and differentiate between the approaches in order to better understand the context of the recommendations and outcomes to be presented later.

Gamification

Gamification is defined as "the use of game design elements in non-game contexts" (Deterding et al. 9). It aims to increase people's engagement and promote certain behaviours (Simôes et

al. 2). In line with this definition, the gamification of education adopts the use of game elements in a learning environment (3). Games are intrinsically motivating due to the elements that make them fun as well as the nature of games themselves, so the application of game elements in the classroom “may increase students’ intrinsic motivation to learn” (Sánchez-Mena and Martí-Parreño 435). A literature review conducted in 2018 revealed that games have “an ineluctable role in the school curricula [and] also suggests that games have the potential to promote learning among children” (Lai et al. 635).

Game-Based Learning

While gamification incorporates elements, such as game mechanics and dynamics, that are associated with digital games in non-game contexts, a specific game is not necessary for gamification to take place. In the context of the classroom, the teacher can transform the class itself into a game, rather than introducing a new object or technology (435). Digital games, on the other hand, leverage the power of technology and games to empower and engage children. Today, these games are considered “one of the most interesting and exciting future directions in the field of education” (Day). With the rise of the internet and rapid advancement of digital technologies since the beginning of the century, and more recently the Web 2.0 paradigm, interest in and the use of digital games as learning tools has continued to gain prominence. This approach to education is known as Digital Game-Based Learning (DGBL). Digital games “develop high-level thinking skills such as problem-solving, strategic thinking, and adoption to changing scenarios”, making the development of useful digital games worthy of examination (Shi and Shih 1). In addition, strong evidence has shown that educational games effectively achieve educational goals (5-6).

Serious Games

Another game-based movement and perspective emerged in the early-mid 2000s that explored the use of digital games for non-entertainment purposes (Charsky 177). Serious Games (SG) focus less on motivating the learner through entertainment and more on creating an “authentic learning experience where entertainment and learning are seamlessly integrated” (179). This describes the design of full-fledged games. Edutainment and instructional computer games, examples of gamified approaches to education, have been criticized for being “drill and practice activities masked with less than entertaining game play” (Van Eck). Edutainment typically teaches lower order thinking skills, while the goal of SG is to facilitate gamers learning higher

order thinking skills (Charsky 180). Modern video games have progressed from the simplistic (Snake, Pac-Man) to the complex (Final Fantasy, Civilization 6). Education has emphasized more constructivist learning methods. This illustrates the natural "parallel progression from developing edutainment to creating serious games" (178), resulting in a more robust, integrated, and holistic approach to learning through gaming that teaches gamers how to "apply their knowledge, analyze their understanding, synthesize their perceptions, or evaluate their learning" (180). Research has shown that SGs and DGBL add value and indicate positive effects on preschool and primary school students and curriculum, promoting a multi-sensory style of learning, keeping students engaged, and supporting their learning "through increased motivation, independence, autonomy, and resultant self-esteem" (Papanastasiou et al. 44).

Games and Sex Education

With the prominence of technology in children's daily lives, as discussed earlier, digital games may prove to be an easier and more motivating method for sex education than traditional methods (Ahmed et al), enabling and empowering children to interact and explore freely in a personalized and interactive learning environment. A 2018 study revealed that students participating in a DGBL-based sex education rated higher on average than students in the traditional teaching condition for all motivational structures in the attention, relevance, confidence, and satisfaction (ARCS) model (Haruna et al. 11).

Accessibility and Inclusion

Technology, Education, and Privilege

In *Families, Powered On*, the authors include a policy brief describing the barriers that hinder family engagement with technology and the ways in which technology may afford new opportunities to improve early childhood education outcomes by empowering families to become better educators at home and strengthening the connection and communication between school and home (Daugherty et al., *Families, Powered On* 1). Written in 2014, they also indicate that the use of technology in formal education settings "may help shrink the digital divide in terms of both access and use for children in low-income families" (2). Although technology use among young children from all income groups is increasingly a fact of life (Daugherty et al., *Getting on the Same Page* 1), Common Sense Media's 2017 report on media use by children from 0-8 years old found that "lower-income families continue to lag higher-

income counterparts in internet and computer access. The gap in home computer access is 25%, while the gap in high-speed internet access at home is 24%, demonstrating that although the digital divide has narrowed, it remains an issue" ("The Common Sense Census: Media Use by Kids Age Zero to Eight, 2017" 23). Because of this disparity in access to and use of technology between disadvantaged students and their peers – the digital divide – "technology use in [educational] settings has the potential to address both aspects of the digital divide: access and use" (Daugherty et al., *Getting on the Same Page* 5). The level of access a child has to quality early childhood education determines how easily the child can advance through other levels of education (Ukala and Agabi 18). Furthermore, adequately accessible sexual health education could help to protect children and adolescents (Haruna et al., 2) as they progress through the curriculum, their education, and life.

Sex Education, Prejudice, and Discrimination

In their book about teaching difficult subjects around race, sexuality, and gender, Ahad-Legardy and Poon encourage educators "to engage in pedagogy that does not pretend teachers and students are unaffected by world events and incidents that highlight social inequities" (Whitley 3). When investigating the backlash and controversy around Ontario's revised H&PE curriculum, two themes frequently emerged: prejudice and discrimination, present both inside and outside the protestors' circle.

Many dissenting parents spoke of a "gay conspiracy", "homosexual agenda", and expressed concern that children would be "pushed by the school system toward sex-reassignment surgery" (Bialystok 21). Dating even a few years before the revised curriculum was first announced, a case note from 2010 detailed a parent's written request to the Hamilton-Wentworth District School Board to be contacted whenever concepts that conflicted with his religious values were to be presented in his child's classroom. In his letter, he identified the "discussions or portrayals of homosexual/bisexual conduct and relationships and/or transgenderism as natural, healthy" (Schuitema 242). Ultimately, the court ruled in favor of the values of inclusion and equality over individual religious accommodation, in alignment with the Board's Equity Policy that included a section on "promoting the principles of equity through the curriculum, including striving to 'deliver programs, provide learning materials, and promote best practices in all accepted subject matter that reflects a balance of perspectives and includes a diversity of experiences including those of Lesbians, Gays, Bisexuals, and Transgender communities" (242). Further, "protection from discrimination on the basis of sexual orientation is enshrined in both provincial and federal

legal codes, and parental or religious rights can rarely take precedence over them in Canada. [Parents] may disagree with what their children are exposed to in school, but they may not insist that all materials meet their approval, as long as the curriculum is not morally prescriptive" (Bialystok 22). An article in The Times London highlighted the same concern of parents from across the pond, quoting one Muslim father saying, "You are either Muslim or you are gay." The article then points out that "there are Muslim children who are gay who desperately need support and acceptance at school, which they may not get at home" (Thomson). There is no doubt that disturbing and significant homophobia exists in Ontario, Canada, and around the globe. It is important, on top of this analysis, to dig even a layer further.

In the case of E.T. versus Hamilton-Wentworth District School Board, Justice Deschamps stated that "the suggestion that exposing children to a variety of religious facts in itself infringes their religious freedom or that of their parents amounts to a rejection of the multicultural reality of Canadian society" (Schuitema 245). Yet, historians have shown that the legal regulation and disciplining of youthful sexuality was largely aimed at the protection of white, middle-class, patriarchal, and adult priorities rather than the needs of the young (Gleason 41). As Bialystok highlights, "it would be naïve to ignore structural conditions that marginalize particular groups and produce bitter forms of divisiveness" (Bialystok 27). Meira Levinson, professor of education at Harvard Graduate School of Education, points out that "recent immigrants, minorities, and non-or limited-English speakers" are systemically excluded from exercising their full parental rights, and this inequality places special burdens on the school system to better accommodate them (Levinson 77). Further, "ambient racism and anti-immigrant sentiment exacerbate these ills. It is not surprising that the most visible protestors in Ontario were recent Muslim immigrants, whose right to dissent was repeatedly called into question by mainstream media" (Bialystok 28). Although parental participation over the course of a child's education can help build trust in the school system, helping to mitigate divisiveness related to particular controversies, it is clear that "the education system – and the rest of civil society – has much work to do [and] despite the theoretical argument for mandatory sex education […] we must transition carefully from the current [opt-out] model while working to ensure that all parents are able to participate as 'free and equal citizens' in public deliberations" (28).

Establishing a Framework

Shi and Shih's Game-Based Learning Design Model

This Game-Based Learning (GBL) Design Model (Figure 1) aims to solve the problem of identifying and employing game factors in the development of educational games, without being limited to a specific game genre, which numerous studies previously had failed to solve appropriately.

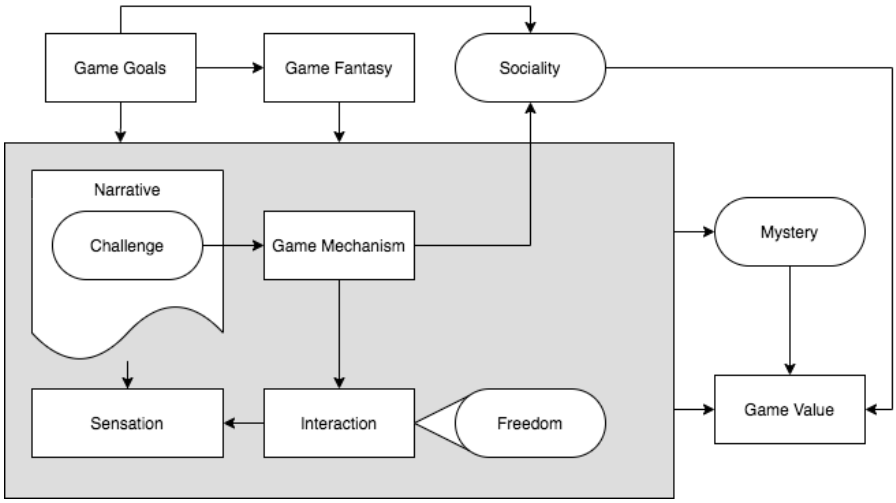

Figure 1: Game-Based Learning Design Model (Shi and Shih 5)

The methods that Shi and Shih used to develop the model involved a literature search to draw out important key factors that make up a successful digital GBL system, keyword selection and generalizing factors, and categorizing the game factors (Table 1 and Figure 2). They then tested the model on two games in different genres – a math puzzle game (*Slice It!*) and a role-playing history game (*Xiao-Mao*), both of which can be considered "serious" due to their nature; one teaches a difficult math concept, and another allows the player to experience and explore events in a historically accurate environment.

Factors	Description
Game goals	Game designer provides what type of experience for players Players pursue game goals
Game mechanism	Refers to the methods prompting players to achieve the designer goals and enables smooth functioning of the virtual world
Interaction	Player operations that trigger the computer to generate related responses, including the interactions and conflicts between players and computers
Freedom	An open game system that allows for player autonomy, including individual services such as the avatar
Game Fantasy	Refers to environmental contexts that provide virtual world imagery
Narrative	Describes what occurs in the virtual world
Sensation	Multimedia presentation of the virtual world
Game value	Promotes players to increase their game motivation
Challenges	Refers to player efforts toward the game or personal goals
Sociality	The interaction between people through the game system including communication, cooperation, competition, and conflict
Mystery	Refers to providing a novel experience for players, including curiosity and exploration

Table 1: Game factor descriptions based on literature (Shi and Shih 3)

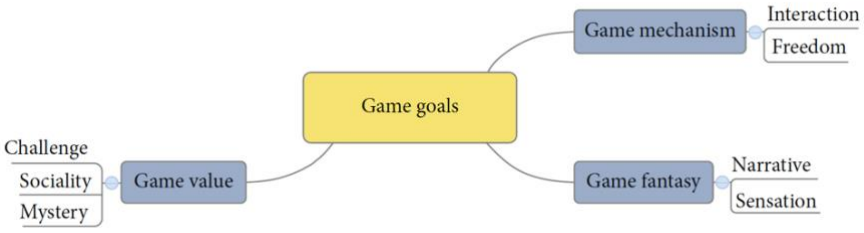

Figure 2: Game factor categories (Shi and Shih 2)

This genre-agnostic model is great for laying out the basics of an educational game. However, it does overlook a few key features necessary for Difficult Subjects. It could be argued that this then would categorize the game into a genre – like a Serious Game – though this is the gap that this research is attempting to tackle. Can this model be adopted effectively to achieve the goals set out at the beginning of this paper, to augment the learning experience of primary-aged children on a Difficult Subject that is sex education? The answer is, not entirely. Instead, this model will be used to validate the design concept being proposed, to ensure it does in fact align with digital GBL system requirements.

Plotting Relevant Pedagogical Theories & Approaches

A few theories and approaches were consistently referenced within the studies used in the Background & Context section of this paper. These were collected, the features identified, then plotted on a Venn diagram to highlight their relationships and visualize any differences (Figure 3). The resulting visual indicates many more similarities than differences. Additionally, most features aligned with and were applicable to each factor/process within the GBL Design Model, thus confirming its efficacy.

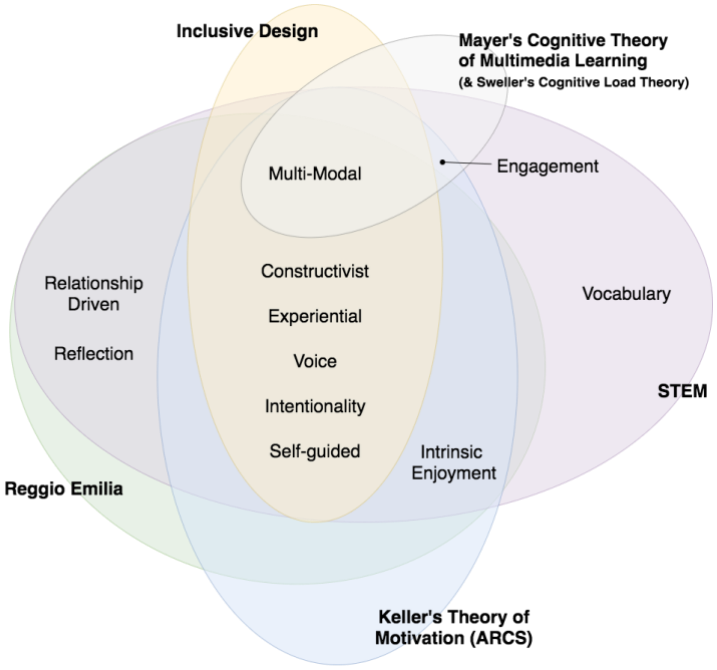

Figure 3: Venn diagram of relevant pedagogical theories and approaches

From here, four main themes were identified, based on the strong similarities between the approaches, as well as the recurring mention of specific important features in relation to youth education and addressing Difficult Subjects within the background research: Inclusion, Relationships, Freedom, Reflection, and Engagement. Figure 4 illustrates what features are involved within each theme. For the sake of consistency, these themes will be referred to as “components”. Where in the digital GBL Design Model refers to game factors, the below will be dubbed components, and anything listed within each component is a feature that determines its strength in a particular application.

Inclusion	Relationships	Freedom	Reflection	Engagement
• Common Environment • Multi-Modal • Diversity • Accepting • Enabling • Respecting • Responsive • Supportive	• Parent-Student • Parent-Teacher • Teacher-Student • Student-Environment	• Self-Guidance • Growth • Voice • Choice • Confidence • Autonomy	• Solidify Learning • Personal • Clarity • Vocabulary	• GBL Design Model

Figure 4: Main themes for effective youth education, with consideration of technology use and thoughtful approaches to addressing Difficult Subjects

Digital Game-Based Learning for Difficult Subjects

Using a combination of the game factors in the GBL Design Model and the components identified above, it is assumed that a thoughtful and effective digital sex education game can be developed and tested. The next section of this MRP will focus on testing these factors and components against the game prototype *Inclusafe*.

Evaluating the Game: *Inclusafe*

Using the features and factors outlined in the previous section, gameplay screenshots from *Inclusafe* were used to map and identify which features were successfully applied and which ones failed. The purpose of this is to identify any gaps or weaknesses in the game as a digital GBL application for sex education.

Components Assessment

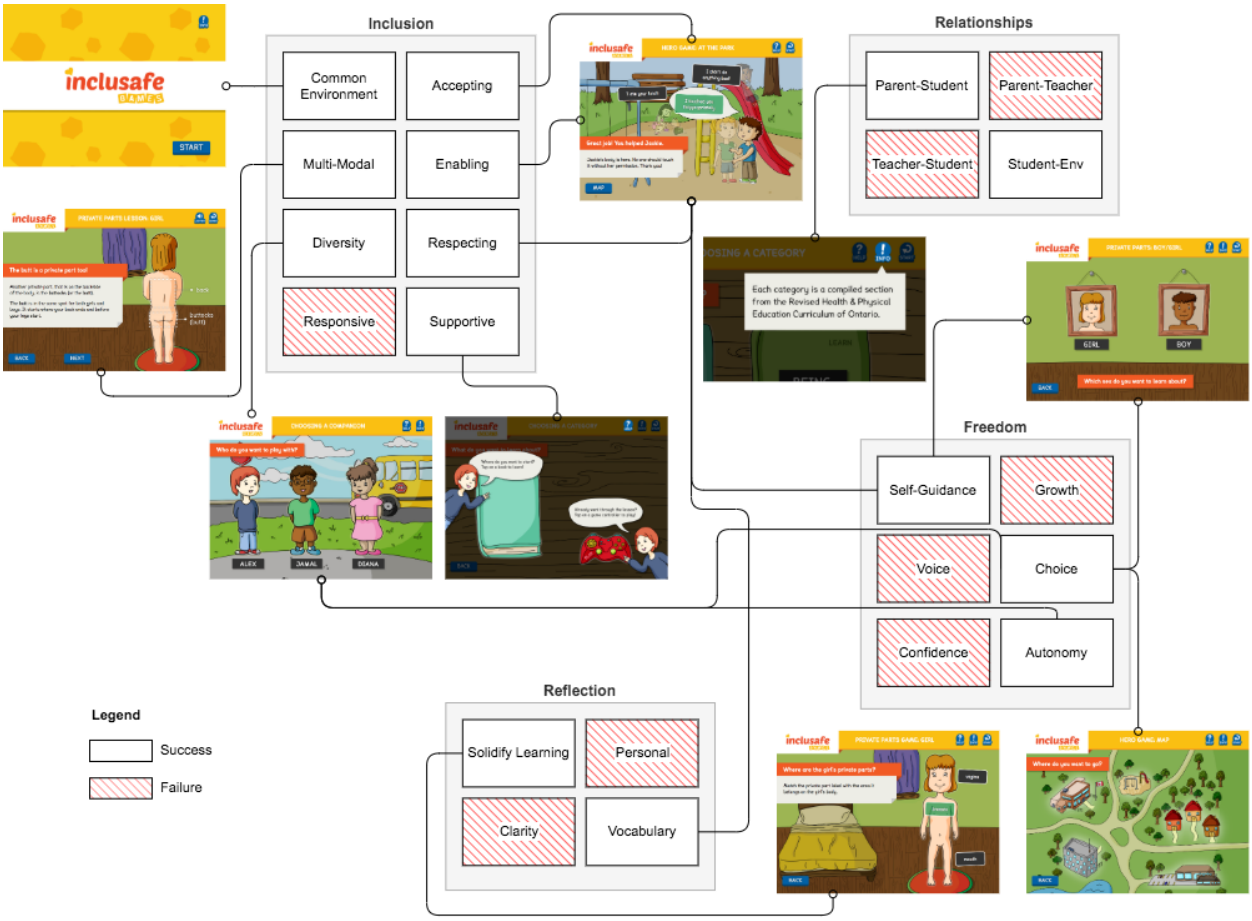

Figure 5: A diagram illustrating the component features Inclusafe succeeds and fails at incorporating, with supporting sample screenshots of each feature success.

Inclusion

All but one feature within this component were evident in the gameplay.

<u>Common Environment</u>

Common Environment refers to “an educational setting where students from different backgrounds and with different abilities learn together in an inclusive environment [it] is not a place where students with intellectual disabilities or other special needs learn in isolation from their peers” (*What is Inclusive Education?*). The game attempts to accommodate for players

with different learning styles and needs by incorporating preset Multi-modal features and preset Supportive options.

Diversity

"Diversity is a defining characteristic of human experience that increases a person's consciousness of who they are in relation to other people [and] internally manifests itself through people's sense of personal identity and how they view themselves in relation to others" (Miller et al. 378). Recognizing diversity and uniqueness is the first of the Three Dimensions of Inclusive Design. Although this specifically refers to a single mass solution not working well ("The Inclusive Design Guide") *Inclusafe* incorporates diversity in its visual representation of its game characters – players have the option to choose a character at the start of the game to act as their virtual friend or companion throughout the game. Three personas are presented to choose from: a white androgynous character, a black male, and an ethnically-ambiguous female. It's important to note that there are issues in attempting to label each character and their identity, as they can be highly subjective, but it can be argued that this allows for more subjectively relative self-identification (or indicate a preference of comfort for the player in the type of companion the player chooses).

Multi-Modal

According to accessibility principles, "content should be made available in different and adjustable modalities so that learners who are more comfortable or only able to consume content in a particular mode have that option available to them" (*Follow Accessibility Principles*). In the case of *Inclusafe*, this takes the form of enabling audio as an option to read screen content aloud and contextualize the environment for players who may not be able to comprehend it visually. However, although it offers this option, it fails to include text alternatives for images.

Respecting, Accepting, and Enabling

These three features are very similar and typically tightly integrated – if one is missing, it is likely the others will be too. Inclusive education not only ensures access to quality education for all, but does so in a way that is accepting and respectful, enabling each student to fully participate in the designed learning environment (*What is Inclusive Education?*). *Inclusafe* does this by enabling players to explore – or click/tap around – a scene, accepts mistakes the player makes

when attempting to solve a problem (i.e. matching game), and respects their pace by not tying activities to a time limit.

Supportive

This feature focuses on ensuring the player is provided support learn, contribute, and participate in all aspects of the GBL environment. *Inclusafe* achieves this by using the character chosen at the start of the game as a companion that helps guide the player through each lesson and activity. To "activate" this support, the player must click or tap the "help" button at the top-right of the screen, and the familiar character will pop up and offer guidance based on each scenario. However, this can be improved as it only offers one layer of generic support which may not be sufficient for all learners (even with auditory aids).

Responsive

The game fails in this area due to not being truly responsive to individual learning needs. Most of the features it offers are generic in nature, and apply to all players regardless of their learning style and abilities, which can leave players discouraged or confused.

Relationships

Relationships are at the heart of the Reggio Emilia approach – it identifies three teachers: parents, classroom teacher, and the environment – the child's relationship with all three is what ignites learning ("Inspired by Reggio Emilia"). As outlined in the background research conducted earlier in this paper, STEM and other technology-driven approaches also emphasize the importance of strong relationships between students, parents, and teachers to help bridge the gap between school and home to improve children's learning experience and support their social-emotional growth. *Inclusafe* succeeds in integrating two of the four features of this component.

Parent-Student

Inclusafe enables dialogue between parents and their children (the students) by providing a button on the top-right called "Info" that functions similarly to the "Help" button, but instead of the chosen companion character making an appearance to guide the player through the game, this button explains to parents what to expect from each section and where the information being taught was derived from – in this case, the revised Ontario H&PE curriculum. It also lays

out information in the lessons in a format resembling a book, which could potentially encourage parents to treat this as bonding time with their child, like when reading to them a story before bed.

Parent-Teacher and Teacher-Student

The game fails to provide feature elements that enable communication between parents and teachers, as well as teachers and students. Progress is not tracked or saved, thus cannot be viewed by teachers to determine knowledge acquisition or efficacy. There is also a missed opportunity for feedback submission, as this would help parents feel more involved in their child's education and growth.

Environment

Environment is the setting in which the child's learning takes place, which is "designed to be not only functional but also beautiful and reflective of the child's learning" ("Inspired by Reggio Emilia"). Although *Inclusafe* is missing component features that would connect and reflect the player's learning in the game's environment, it does establish settings well and allows the player to explore multiple areas at their own pace, and sets the tone based on the location (e.g. playground vs. bedroom – when exploring and identifying body parts, it is done in private, denoted by the bedroom, and identifying problematic social interactions such as bullying requires others to be involved, and typically takes place on playgrounds). This helps contextualize the content in an environment that seems "real".

Freedom

Freedom is defined as a system that "allows for player autonomy, including individual services such as the avatar" (Table 1), which numerous studies have indicated promotes skill-based outcomes and is a crucial part of educational games (Shi and Shih 3). The importance of giving students the freedom to fail without fear when learning (Sánchez-Mena and Martí-Parreño 435) and the freedom to choose the way they play or interact with a game (Nolan and McBride 599) are also considered valuable and effective. *Inclusafe* succeeds in integrating four of the six features of this component.

Self-Guidance, Choice, and Autonomy

Similar to the features of Respecting, Accepting, and Enabling in the Inclusion component, these three features are closely related with subtle differences. Self-Guidance refers to self-paced learning, and "challenges educators to see children as competent and capable learners" ("Inspired by Reggio Emilia"). Choice provides players with the opportunity to decide where they want to take their learning. For example, choosing to learn about bullying and explore the playground in the game before learning about body parts. Consequently, autonomy in the form of learner-initiated choices is "a core dimensions of informal game-based leaning" (Nolan and McBride 596).

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Voice, Confidence, and Growth

Although there are elements of autonomous choice provided in the game, it is missing the crucial elements of Voice. In children, this can be communicated in many ways: audible sounds and words, artwork, facial expressions, body language, music, dance, play, and even in silence – the form it takes can differ greatly between children (Koller 2659). Although the game does provide opportunities for player input, it does not offer much freedom in the type of input – children can drag and drop preset responses to questions or "challenges" within the game, but are not given an alternate option, such as drawing or expressing any other form of feedback besides what is already determined for them. Because Challenge (illustrated in Figure 6) and Choice build competence by allowing children to become "more comfortable and confident" ("How Intentional Teaching Practices Can Build Student Motivation, Competence & Confidence"), and Voice is missing from the types of Choices made available to players through

the game's Challenges, true growth cannot be achieved. Especially since progress cannot be tracked, the comfort of players with a topic cannot be measured, other than by the gratification they might get from completing all their matching activities with a "green" highlight that indicates correct answers.

Reflection

According to the Massachusetts Department of Early Education and Care, it is important to allow reflective time and guide children to reflect on new understandings – this means encouraging and inviting them to describe their observations and ideas in order to further their understanding and solidify experiences for them ("Engaging Children in STEM"). The importance of the use of proper vocabulary is also emphasized, both for learning and to provide children with the appropriate tools to communicate and make connections. As argued by Halstead and Reiss, one of the three distinct duties of schools is to encourage children "to construct their own developing value framework through a process of critical reflection" (4). *Inclusafe* satisfies two of the four features of this component.

Vocabulary

Vocabulary here refers to the introduction, use, and modeling of key terms in context. The same way that it is important to use the actual word "died" and be clear about what actually happens when someone dies (Turner), it is important to use the proper terms for body parts when they are introduced – for example, vagina instead of "foo foo", "lady bits", or "front bum" (Marini). This helps to normalize terminology and make it acceptable for children to use those words to describe their own thoughts and experiences, which strengthens comprehension, retention, and sense of self. *Inclusafe* uses accurate terminology for all body parts – as does the new H&PE curriculum – thus succeeding in this aspect.

Personal and Clarity

This feature refers to the player's ability to see or create a reflection of themselves or their experiences in the game. Although *Inclusafe* equips players with proper vocabulary, it is a one-way street – there is no way for the player to take that and apply or interpret it in their own way. This can result in lack of Clarity; if an outlet does not exist from the player's perspective, it can be difficult to connect with or understand the game and it's content.

Solidify Learning

This passing grade is based on assumption. It is assumed that if a child consistently answers questions in the game correctly, then their learning is solidified. Although proof of this is not directly available in the game (through progress tracking, etc), it is difficult to measure the true retention of learning as not all children learn or reflect in the same way. Because *Inclusafe* fails in the Personal and Clarity features, the success score in Solidify Learning can offset any potential imbalance in the Reflection component by accounting for individuals who may gain just enough from using the already provided preset inputs within the game.

Filling in the GBL Design Model

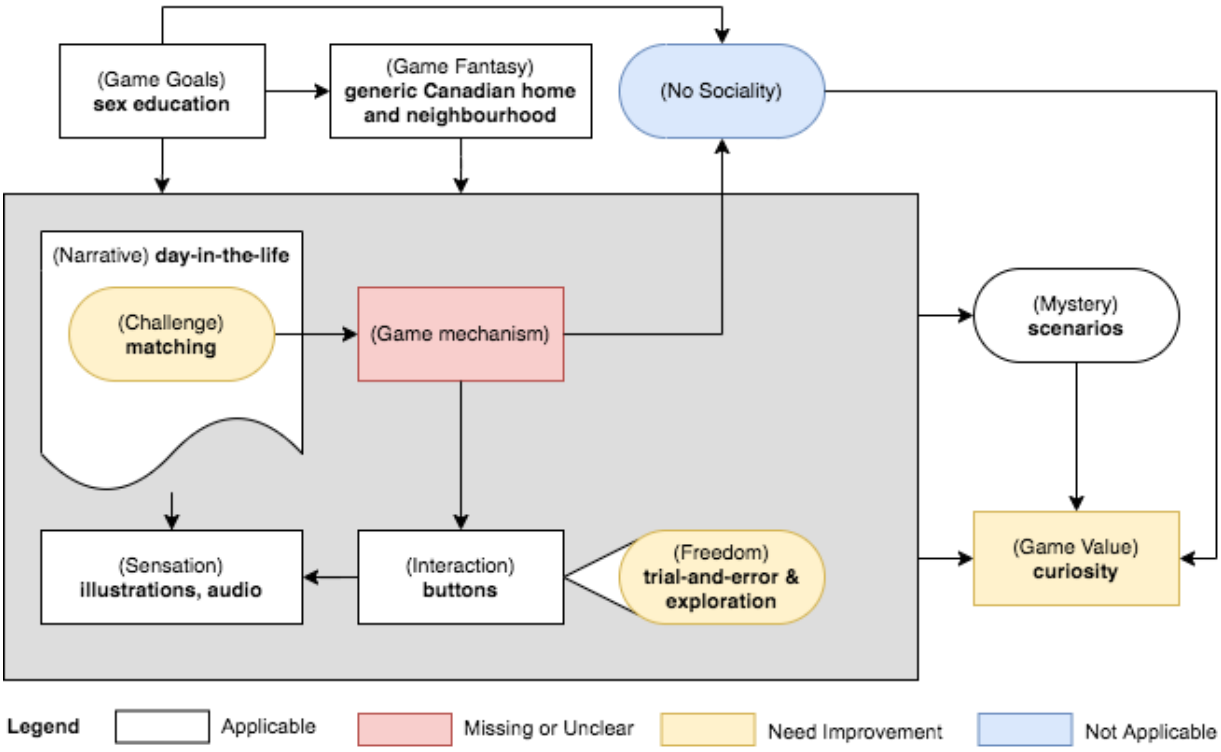

Figure 6: GBL Design Model for Inclusafe

Dissecting *Inclusafe's* game factors and mapping them to Shi and Shih's model reveals a few weaknesses in the game's structure that affects engagement, which can consequently impede learning. The weakness lies in the Challenge, Game Mechanism, Freedom, and Game Value factors. Sociality refers to the "interaction between people through the game system including communication, cooperation, competition, and conflict" (Table 1). Due to sex education's

private, self-paced nature, incorporating Sociality may add another layer of complexity and risk to the child's learning, especially if they are aware their peers are watching, and if elements of competition are involved. So, to respect the sensitive nature of the subject and the age group in question, Sociality has been deemed not applicable or necessary to the overall strength of the game.

Although *Inclusafe* attempts to associate learning objectives with the challenges or tests it presents, there is not enough variety or choice in the types of activities or ways the child can test, retain, and progress in their learning – currently, it relies exclusively on a matching activity format. Challenge refers to "player efforts toward the game or personal goals", and learning content typically contains a high degree of challenge (Table 1). As outlined in the previous section, if challenges are not implemented effectively, it becomes harder to identify and accomplish personal goals. Because learning must be gradual, incorporating challenge helps players establish and surpass milestones within the game and their learning. Similarly, the lack of avenues provided to extend answer choices limits player Freedom. Game Mechanism refers to "the methods prompting players to achieve the designer goals and enables smooth functioning of the virtual world" which include tasks, rewards, and achievements (Table 1). Mechanisms "promote challenge, which motivates players to achieve their goals" (Shi and Shih 4), so the absence of a clear mechanism for gameplay also impacts Challenge. Game Value attracts players to initiate the game – it is the primary factor for generating motivation and immersion (4). Due to the weaknesses identified in the game's Challenge, Game Mechanism, and Freedom factors, the Game Value suffers. Goals that are meaningful for players generate game value, and if children are unable to find meaning in the games they are playing, whether that is due to limited freedom or lack of clarity, then the game loses value, and in return, Engagement (the fifth component shown in Figure 4) is diminished.

Adjusting for Difficult Subjects: Proposed Model

Much of the reviewed literature, specifically focused on Sex Education, Difficult Subjects, and STEM, made reference to intentionality and explicitness, focusing on social-emotional development, critical thinking, thoughtfulness, and care ("Engaging Children in STEM", Goldman, Turner, Whitely, "How Intentional Teaching Practices Can Build Student Motivation, Competence & Confidence in H&PE"). Andrew Sherman, Head of School at GEMS World Academy, reminds educators that "we must work with parents and children alike, to ensure that they understand how to navigate difficult conversations and recognize what positive and

respectful engagement looks and sounds like. For example, teachers should communicate about what is being discussed in the classroom during parent meetings and provide suggestions on how to continue the conversation at home" (Sherman 293). Sherman also argues that, just as importantly, children "need to learn how to negotiate social issues and develop analytical skills [and] parents should encourage their children's critical thinking […] for example, if a child talks about a story on the news, address the child's feelings and encourage real-life examples to connect [their] words with what [they have] experienced" (293-294).

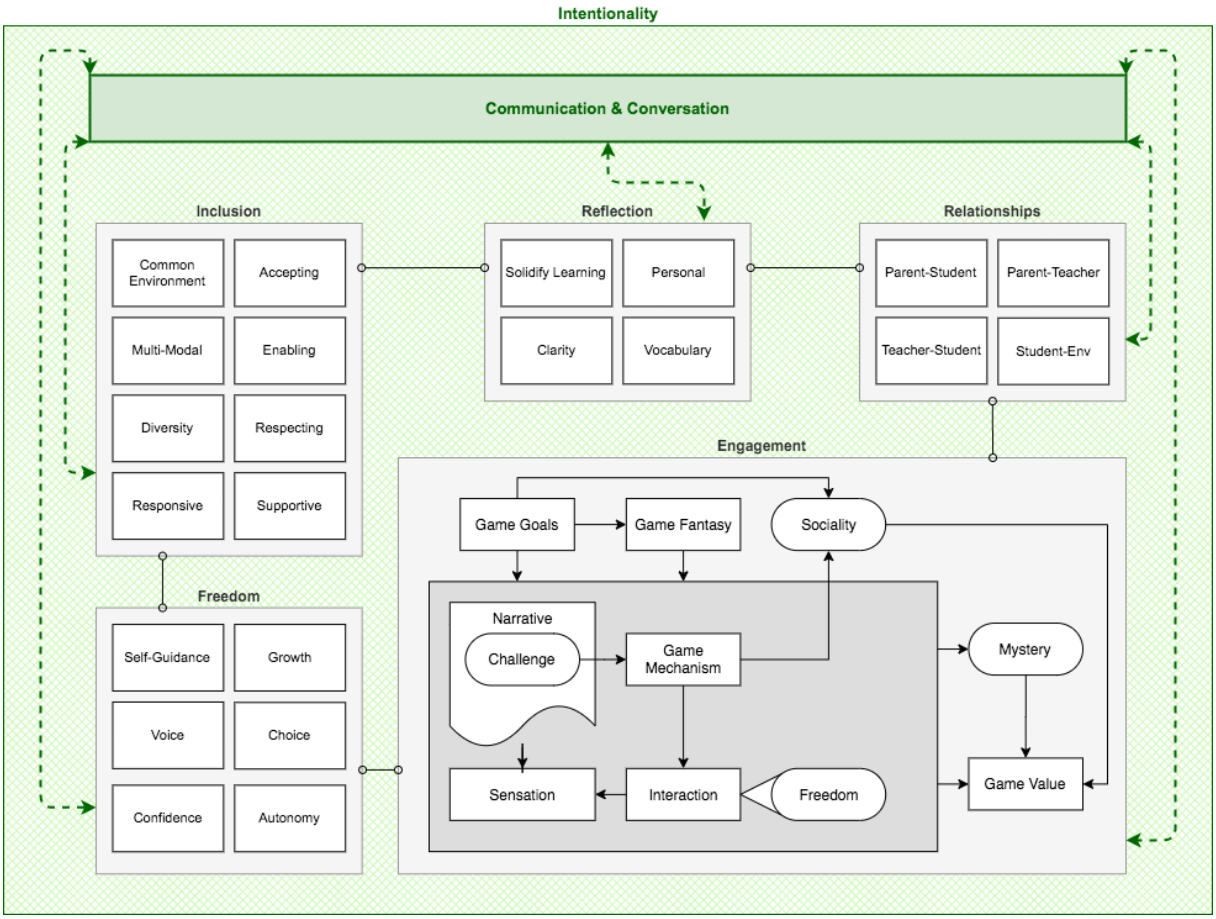

Figure 7: Proposed model for GBL design for Difficult Subjects

This echoes the importance of these interactions in STEM, as well as supports the importance of home-based involvement, school-based involvement, and school-home conferencing as key components of family engagement, which is associated with many positive outcomes for children inside and outside the classroom (Daugherty et al., *Families, Powered On* 1). These communication and meaningful conversation opportunities are missing from *Inclusafe* and

should be added as a frequent touchpoint that is ever-present throughout the Serious Game experience for this (and other) Difficult Subjects. Further, establishing intentionality as an all-encompassing requirement ensures that every part of the game is purposeful, acting as a reminder to anchor entertainment within the game with specific goals – this does not mean removing the “fun” factor, but instead avoiding exclusive, inauthentic learning experiences (Figure 7).

Suggestions for Improvement

Results from the Components Assessment and Filling in the GBL Design Model were consolidated into the proposed model and highlighted in red/diagonal lines (Figure 8). The identified weaknesses of *Inclusafe* are listed below with ideas for improvement.

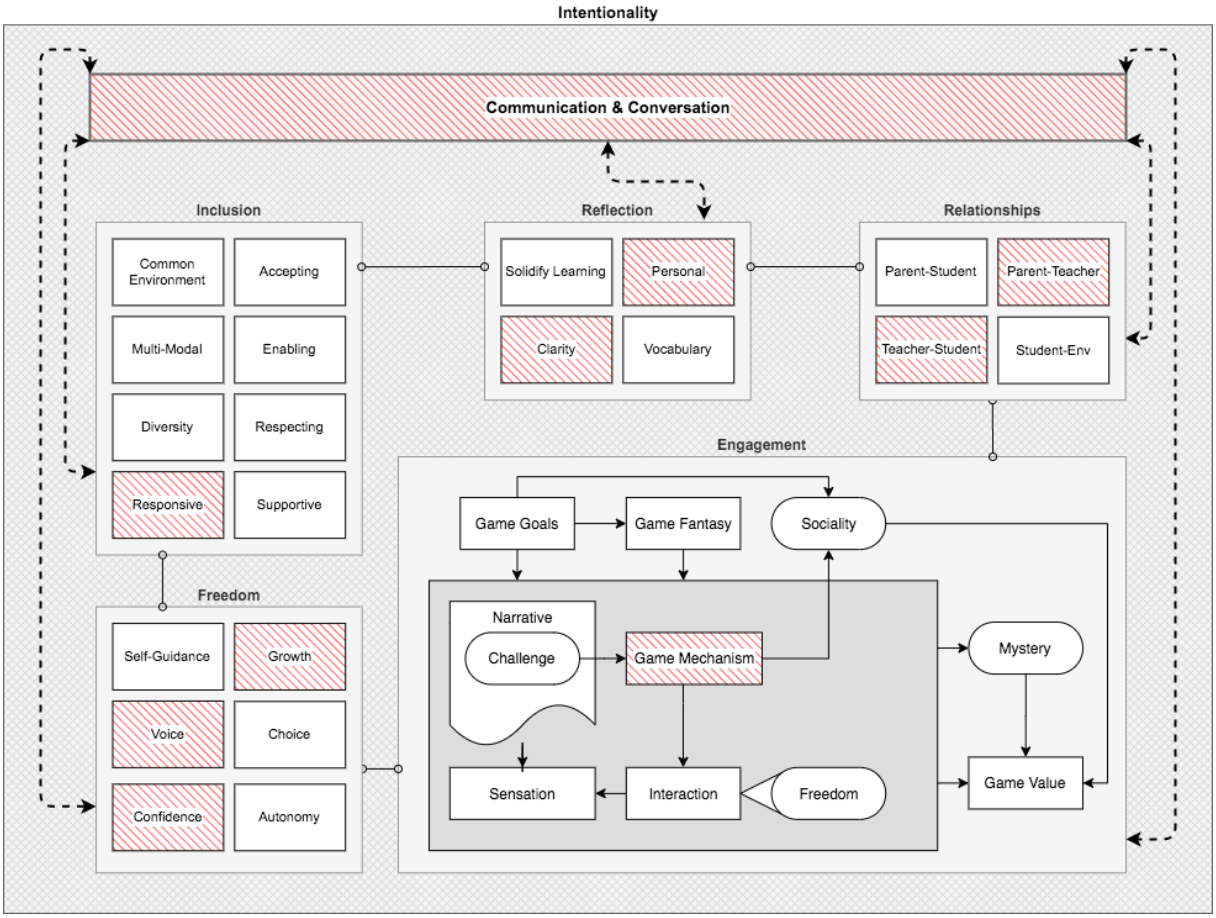

Figure 8: Highlighted gaps in Inclusafe to be filled

Inclusion: Responsive

To accommodate for individual needs and different learning styles, a “Settings” screen can be implemented that allows for the adjustment of content, layout, and sensations. This screen can be set up by either the parent or teacher, and the child (player) can also have access to play with and update these settings. The following are editable options suggested for this screen (partially inspired by the Inclusive Design Guide):

- Colour and contrast
- Text (size, style, line spacing)
- Audio (speech speed, disable/enable auto-play)
- Content (hide/show images, hide/show text, simple/detailed text)

Reflection: Personal, Clarity

Inclusafe in its current state does not offer players the ability to see or create a reflection of themselves in the game. Although players are presented with “diverse” companion options, implementing a customizable avatar would allow for deeper personalization and connection of the player to the game and content. Further research is required to determine whether it is a good idea to include full body customization for the avatar, however based on the background information gathered at the start of this paper, enabling children with full control allows for true autonomy. The following are suggested options to include in the custom avatar creator:

- Physical features (e.g. hair, face, eyes, mouth, nose, ears)
- Accessories (e.g. hats, glasses, piercings, clothes, shoes)
- Voice (deep, high – use a range selector for precise selection)
- Freestyle – allow the child to draw their character or colour their outfits if they wish (the ultimate form of personalization and freedom)

In addition to representing a reflection of themselves (whether based on reality or imagination), an outlet for players to share their personal experiences in the game would help them interpret information and provide clarity by connecting their experiences to what they are doing, seeing, hearing, and learning in the game. This can be in the form of storytelling.

Relationships: Parent-Teacher, Teacher-Student

To resolve the lack of channels for Parent-Teacher input or communication, a password-protected chat function can be implemented. This would allow secure and direct communication between the classroom teacher and parents, with instant feedback that can foster Parent-Teacher/Parent-School trust and further enhancing the child's experience and result in more meaningful participation for all parties. This chat function can enable immediate input and feedback.

Progress tracking can also be implemented to allow for the teacher to remain up to date with each child's pace, struggles, and accomplishments. Perhaps allowing children to receive direct messages from their teacher would help keep them engaged and motivated (e.g. "You're doing great, Sarah! Well done ☺ - Miss Samson"). However, due to different personalities and learning styles, this might deter some students if they feel they are being watched or monitored during gameplay, so this could be added to the game Settings page and enabled/disabled based on each child.

Freedom: Voice, Growth, Confidence

The tests, or challenges, presented in *Inclusafe*'s gameplay are limited to drag-and-drop activities. Providing children with a variety of activity types would help bring their Voice into the game and learning. Further, allowing alternative forms of input – such as drawing, singing, playing music, or typing – would provide a deeper level of autonomous play that could lead to further competence and growth – all of which increase motivation and confidence. The following are elements that can be added to incorporate these features:

- Notebook for drawing, recording audio, typing, etc.
- Open-ended questions/challenges that allow the child to answer using a preset then elaborate in any format they wish (e.g. "How did this make you feel?")

Engagement: Game Mechanism

The Challenge factor was identified as an area for improvement, along with Freedom and Game Value. These are all associated with Game Mechanism. Challenge should help players establish and surpass milestones within both the game and their learning. The lack of avenues provided to extend answer choices in Challenges limits player Freedom. However, assuming

that Challenge and Freedom are now strengthened by the suggestions provided in the sections above, the following mechanisms can be added:

- Rewards for answering questions correctly, exploring a scene, asking questions, or providing any sort of input based on the respective student's learning style and goals
- Specific tasks that help advance the player to another scene or stage (for example, a bonus level that include "extra" content, but not hiding the foundational learning content or goals behind any barriers)
- Adjustable difficulty levels

Conclusion

The information gathered through the analysis of relevant literature, studies, theories, concepts, and approaches in this MRP provide insights that accumulate into a Game-Based Learning Model by Shi and Shih consisting of 11 game factors (Game Goals, Game Fantasy, Sociality, Mystery, Narrative, Challenge, Game Mechanism, Sensation, Interaction, Freedom, and Game Value) that are together successful when considered in a genre-agnostic setting. However, when it comes to incorporating games into the teaching of Difficult Subjects, the model falls short. Although it may work well in a STEM setting (e.g. math game), Difficult Subjects in the context of this MRP have been defined as topics that are innately hard to grasp or difficult to explain, have been stigmatized, categorized as taboo/containing adult-themes, and that children are assumed to not be able to understand due to their chronological or cognitive age. This expands the definition past traditional academic settings and measurable skills, covering topics such as death, race, and sex – all of which do not follow a generic experience, but require a one-size-fits-one approach ("The Inclusive Design Guide").

The goal of this research was to address the concerns arising out of the new Ontario sex-ed curriculum from 2015-2019 by providing suggestions for digital game features that would effectively augment the comprehensive education that young children (ages 6-12, grades 1-6) need to navigate the difficult and controversial space of sex education. The research effort was to act as a building block for *Inclusafe*, a digital game-based sex education prototype created for children based on the revised Ontario H&PE curriculum. Through the data gathered, relevant pedagogical theories and approaches were plotted and compared, and a comprehensive set of educational game components and features were developed to compliment the GBL Design Model: Inclusion, Relationships, Freedom, Reflection, and Engagement. These components,

along with the GBL Design Model (which falls under “Engagement”), were then tested against Inclusafe to determine whether it is an effective and inclusive tool for communicating with and educating children around the Difficult Subject of sex education. Significant gaps were found (Figure 5 and 6), and a new model was proposed (Figure 7) that tied the model together with two important pieces for handling Difficult Subjects in a constructivist, technology-supported learning environment: Communication & Conversation as an input/output threaded throughout and between each component, and Intentionality as an all-encompassing requirement, ensuring that every part of the game is purposeful in order to foster meaningful dialogue, better retention, and positive outcomes. Finally, suggestions for improvement were provided based on gaps identified in *Inclusafe’s* gameplay and learning experience.

The outcome of this research is a model that can be followed or built upon to create inclusive, thoughtful, and effective games for Difficult Subjects. Although the goal was centered around digital games and sex education and testing theories and models on a pre-existing game prototype, *Inclusafe*, sex education can be treated as a case study, providing a foundation for a myriad of future applications in other difficult topics that help facilitate more fulsome conversations, provide a safe, inclusive, and engaging approach to educating children through digital games, and allow parents to feel control and comfort in their child’s education by enabling engagement and participation.

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