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May and Bay: Online Child Sexual Exploitation and Abuse in Southeast Asia — Using Digital Games in Preventative Education

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Abstract

This article follows the journey of creating a digital preventative education programme for combating online child sexual exploitation and abuse (OCSEA) and child sex trafficking in Thailand and Cambodia. Created and rolled out over 2 years as part of the End Violence Against Children (EVAC) grant during the COVID-19 global pandemic, this article sets out how the programme was designed, with direct input from children and professionals, and underpinned by human rights and contextual safeguarding principles. It outlines how collaborative approaches between children, academia, expert NGO's, and professionals have resulted in a thought-provoking digital programme (*May and Bay*) that sensitively tackles sexual grooming and promotes child safeguarding. The article highlights how the game focuses on the interplay between children's choices online and the environmental constraints they face, with the lead characters May (aged 11) and Bay (aged 13) making 'risky' and 'safe' choices against interacting aspects of their social and digital environments. The game supports the development of digital competence among children and professionals by promoting awareness of online harms emanating from the interplay of technology with children's micro, meso, and macro environments against a range of people whose interaction with them may be 'safe' or 'unsafe'. It recognises children, peers, parents, carers, professionals responsible for safeguarding, media, legislators, and local non-governmental and international aid organisations as potential 'attractors' or 'agents within the system' whose combined efforts can change how child safeguarding systems respond.

Keywords Online child sexual exploitation and abuse (OCSEA) · Digital safety · Child trafficking · Grooming · Preventative education · Simulations · Human rights approach

Introduction

The landscape of age-appropriate, child-centred, and play-based preventative education programmes addressing online child sexual exploitation and abuse (OCSEA), child sex trafficking, and other harms directed toward children is continually advancing. Children face a more diverse set of dangers today than previous generations, typically in multimodal

platforms where digital technologies are ubiquitous. The United Nations Children's Fund (UNICEF) noted that children under the age of 18 account for around one in three internet users globally (UNICEF, 2017), highlighting the magnitude of children represented online. The term 'children' is used throughout the article to include all children, and young people under 18.

An Office of Communications report (Ofcom, 2015) highlighted an increase in time spent online for young people rising from 12.5 to 13.7 h a week, while a recent Techjury blog (Georgiev, 2023) reported daily screen time increased from 7 h and 22 min in 2022 to 8 h and 39 min in 2023, with 2.5 h on social media. While the use of social media is becoming an integral part of young people's lives and providing opportunities for self-expression (Livingstone et al., 2018), they can also be risky places where children can be tricked, groomed, and manipulated (Whittle et al.,

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2013; Reeves & Crowther, 2019). Contemporary research echoes this, suggesting that viewing dangerous, sexually explicit images and videos, or extremist content; participation in online social media ‘cubby holes’; or uploading public ‘vlogs’ (Halder & Karuppanan, 2014) may lead to young people being approached online with the purpose of grooming and manipulating them (Reeves & Crowther, 2019). Post COVID-19, OCSEA remains an evolving, worldwide issue of considerable magnitude (Hedderson et al., 2023; Simon et al., 2020).

To address the growing risks to minors (online and offline), the University of Kent’s Centre for Child Protection (the ‘Centre’) based in the United Kingdom (UK); the A21 Campaign (A21) — global: including Thailand, Cambodia, and ECPAT International (ECPAT) — based in Thailand; and PlayerThree gaming company — based in the UK and with consultancy from the University of Stirling in Scotland (hereafter the Partners) have developed a serious game (also interchangeably referred to as ‘simulations’ or ‘digital games’), as part of the End Violence Against Children (EVAC) grant project, ‘A serious game for a serious issue: combating online child sexual exploitation and trafficking via a digital game’. The grant allowed the Partners to develop a preventative educational game titled *May and Bay*, addressing OCSEA, sexual grooming, child trafficking, and contextual community safeguarding in Southeast Asia. Given Southeast Asia’s geographical size and cultural diversity, the game was contextualised for the Kingdom of Thailand (Thailand) and the Kingdom of Cambodia (Cambodia).

This article focuses on the collaborative process, stakeholder research, design, and theoretical underpinnings of the digital game, including the importance of games as a preventative strategy. The project was funded in December 2019, just a few months before the first lockdown of the COVID-19 pandemic. The impact of the pandemic led to changes in the project’s mode of operation, some of which are referred to in the article. One notable impact was the inability to travel, given that the project team itself was transnational, comprised of members from seven countries (Thailand, Cambodia, England, Scotland, Australia, Canada, and the USA). The project used a child-centred approach, keeping ‘the child in focus when making decisions about their lives and working in partnership with them and their families’ (Department for Education, 2018, p. 9). This approach was adopted based upon the Partners’ decades of combined expertise, knowledge, and experience (locally and globally) in child protection, trafficking prevention, educational programme development, and contextual community safeguarding approaches, along with research and advocacy.

Significantly, the game’s design included children and local stakeholders in the development, implementation, and roll-out to ensure the game on OCSEA and child trafficking (sex and labour) was culturally sensitive, age-appropriate,

and child-centred. The theoretical frameworks underpinning the development of the game are a careful assemblage of perspectives drawn from a human rights-based approach, contextual safeguarding (Contextual Safeguarding Network, 2020; Firmin, 2019, 2020), and educational and child development theories (Vygotsky, 1978), along with complex systems theory (Lancu and Lanteigne., 2022).

The project aimed to enhance digital safety and resilience among children through preventative education about OCSEA and child trafficking. The project’s learning outcomes concur with recommendations from the Broadband Commission (2019) that education can significantly help children’s online safety. Appreciating the terrain of OCSEA, the project’s aim is to prevent children from being drawn into sexual exploitation by educating them to better protect themselves, their siblings, and their peers.

Professionals are educated to enhance their understanding of OCSEA and child trafficking, receiving training on using the games with children in various settings such as schools, non-governmental organisations (NGOs), and community groups. The training equips them with the knowledge of how to respond appropriately to disclosures. The programme consequently focused on tackling the complex inter-relation of (1) the production of online live or recorded child sexual abuse materials; (2) grooming for the trafficking and exploitation of children (sexual or otherwise), including migration and movement; and (3) contextual community safeguarding.

This article will first consider the theoretical frameworks that underpin the project before moving on to a brief background about Thailand and Cambodia and some of the policy and legal issues in the region. It will then move on to consider the context of OCSEA and child trafficking in Thailand and Cambodia, the importance of human rights, a good practice example of digital preventative education from the United Kingdom, the collaborative design of the EVAC game, theoretical analysis of the digital game, the challenges the Partners had to overcome, and then will move on to discuss the roll-out of the pilot and conclusion.

Theoretical Frameworks

Specific conceptual, theoretical frameworks underpinned this project from its inception, informing not only the educational framework of the digital platform but also the design of the content. A human rights-based approach has been used throughout in terms of discussions, stakeholder collaboration, and design, recognising this as essential to the relevance and success of the game. This approach promotes human rights by empowering the most marginalised and discriminated groups, guided by human rights instruments like the Universal Declaration of Human Rights (United Nations Sustainable Development Group, 2022; United Nations

Population Fund, 2022). A human rights–based approach recognises individuals as ‘key actors in their own development’, supported by partnerships with key stakeholders, and monitors and measures programme outcomes (United Nations Population Fund, 2022).

Complementing the human rights–based approach is the theoretically informed and practice-based contextual safeguarding framework developed by Firmin (2019, 2020; Contextual Safeguarding Network, 2020), which highlights the need for child protection systems to recognise the dynamics of adolescent development, along with extra-familial contexts such as schools, neighbourhoods, and the online environment as the source of harm to children’s safety. It also draws on a wider systems theory perspective (Bronfenbrenner, 1979) recognising the impact of multiple levels of local, national, and global influences that can increase the online risk for children.

A further key theoretical influence on the development of the frameworks of digital games is the work of Vygotsky (1978) and the concept of the ‘zone of proximal development’. Arguably, the zone of proximal development helps teachers assist people in developing skills beyond their immediate reach, including critical thinking. Vygotsky argued that the zone of proximal development is the difference between what a learner can do independently and what they can achieve with help. Put simply, teachers, peers, activities, and some learning environments can help develop critical skills via scaffolding: structuring an issue clearly and problematising it. By embedding this approach in a computer simulation, the teacher or professional can encourage children progressively toward less passivity, greater independence, and stronger understanding in the learning process, i.e. by promoting learning by ‘doing’ (Drumhiller et al., 2021).

Additionally, this project recognised the significance of stakeholder involvement, and as such multi-stakeholder collaboration was integral to the grant application. Small groups of children and multi-disciplinary practitioners were thus co-opted as consultants driving varied design elements of the game. Influenced by the work of Kujala (2003) on user involvement in system development, and its value in promoting user satisfaction through effective representation of their implicit needs in real product development, the Partners sought the creative input of children. Recognising children as the primary users of the game, their input on the characters and the interactive elements of the game as on the cultural realism of the game was important. The Partners were acutely aware from the onset that successful implementation of the game would require community and stakeholder buy-in, inclusive of the child audience. The process of user involvement adopted by the Partners, however, is not without limitations. For instance, user involvement was not possible from scratch in the design of this game. The

outline of the design in terms of the problem it was going to tackle had already been devised and submitted as part of the grant application. This indeed affirmed the argument made by Uğraş et al. (2022) that it is not very often that games are designed with children from scratch. Nevertheless, engaging users early in the process following the grant award improved design quality and user acceptance.

The Importance of Human Rights

Responses to the issue of child trafficking and OCSEA across the globe have been underpinned by global protocols and conventions. For example, the United Nations Convention on the Rights of Child (UNCRC) 1989 firmly recognises children’s rights against abuse and exploitation (UNOHCHR, 1989). The United Nations Protocol to Prevent, Suppress and Punish Trafficking in Persons (Palermo Protocol) addresses strategies for the elimination of trafficking in humans including children (United Nations Office of the United Nations High Commissioner for Human Rights [OHCHR], 2000, art. 6 (4)), in response to concerns that both in-person and online trafficking and sexual abuse and exploitation have been increasing (Simon et al., 2020; Global Alliance, 2021). As children are more vulnerable to being victimised through trafficking (OSCE, 2022), children receive special consideration in most international conventions and guidance due to this additional vulnerability. Therefore, the Partners felt it essential to incorporate human rights as a central theme throughout the game.

Furthermore, within a Southeast Asian context, the Association of Southeast Asian Nations’ (ASEAN) Plan of Action 2021–2025 states that all ASEAN member states support the promotion and protection of human rights and the ‘care and protection of children and youth’, as reflected in international and regional instruments, including the UNCRC (ASEAN, 2021, cls. 1.5.3 and 3.6.2). While the extent of the special provision for children varies across borders, there is wide recognition of the importance of the UNCRC underpinning responses and support for those children at risk or harmed through trafficking and other forms of exploitation. The specific provisions relating to the prevention of exploitation and support for children include Articles 19, 34, 35, and 36 (United Nations General Assembly, 1989). The UNCRC also recognises the importance of multi-dimensional responses that include criminal justice, administrative, and educational measures akin to a public health approach in its application.

A public health response has the ability to centre on vulnerable populations who are at risk of OCSEA and child trafficking, who are often the same ‘populations of interest to a public health’s focus on advancing social justice and health equity’ (Recknor et al., 2022, p 608). Measures

tackling these violations of children's rights should include effective procedures for the establishment of social programmes to provide the necessary support for the child (and for those caring for the child) as well as for other forms of prevention and identification, reporting, referral, investigation, treatment, and follow-up of instances of child maltreatment, and, as appropriate, for judicial involvement.

The design and roll-out of *May and Bay* is underpinned by a 'widespread acceptance of the need for a human rights-based approach to trafficking' (UNOHCHR, 2014, p. 1), recognising that 'violations of human rights are both a cause and a consequence of trafficking in persons' (UNOHCHR, 2014, p. vi). Recently, there has been more of a focus on the role of grooming children who are vulnerable to trafficking (OSCE, 2022). Prevention programmes increasingly include training for those working with children, and signposting to resources to support children, parents, and professionals. In recognition of the global importance and understanding of several conventions, the game was underpinned by an understanding that the practical realisation of children's rights is central to effectively safeguarding children. The interconnected protectionist, participatory, and provision rights of children (Archbold et al., 2021) enshrined in the rights framework of the UNCRC are thus at the core of the work of this project. A child's right to protection against exploitation (Art. 34, UNCRC) underpinned the broad theme of the game, and the consultative and participatory nature of the game design was thoroughly informed by children's right to participation (Art. 12, UNCRC). Additionally, UNCRC articles have been incorporated as a gaming feature in *May and Bay* as 'hidden posters' for children to find, discuss with peers and facilitators, and learn from. Further, human rights-focused 'games within games' promote and help child safeguarding, imparting knowledge (i.e. country-specific helplines) to help children protect themselves and their peers.

Background to the Game

Child Trafficking and OCSEA in Southeast Asia

Given the prevalence of OCSEA in the regions discussed below, the game has been contextualised for Thailand and Cambodia, addressing the recognised needs in the region (Southeast Asia). Thailand is classified as an upper middle-income country, and Cambodia is a lower middle-income nation, with around 18% of the population living in poverty, on less than US\$2.7 a day (World Bank, 2022a, b). Unregulated movement back and forth between these nations is made possible due to porous borders, unlicensed brokers, and organised traffickers (U.S. DOS, 2022). Migrants, stateless persons, and ethnic minorities, along with persons

using irregular migration channels or living with precarious immigration status, are at a higher risk of human trafficking and other forms of exploitation (U.S. DOS, 2022), including children (ECPAT, 2023).

The increased economic hardships in rural communities in Cambodia place these groups at 'higher risk' of exploitation, particularly those in forced labour in neighbouring nations like Thailand (U.S. DOS, 2022, p. 158), with victims being exploited abroad after accepting false job opportunities or being deceived in other ways (U.S. DOS, 2022, 541). Taking these jobs can lead to exploitation which could include sexual exploitation. The game explores all of these issues from a preventative educational perspective. Exploitation can also occur online or offline in 'sex, entertainment and hospitality industries' including tourism and travel, and can take other forms, such as domestic work or forced marriage (UNODC, 2022). Crimes in these contexts often involve online grooming and the creation and distribution of child sexual abuse material, moving abuse from a mere interpersonal encounter into a complex, dynamic phenomenon for children.

Furthermore, the lack of support within some communities in Cambodia and Thailand increases children's vulnerability to potential harm (UNICEF, 2022). Many children from 'impoverished families' within Cambodia are at increased vulnerability to forced labour (i.e. forced begging and domestic servitude) domestically and abroad, 'often with the complicity of their families' (U.S. DOS, 2022, p. 158). Many Southeast Asian nations, including Thailand and Cambodia are also major destination, source, and transit countries for child sex trafficking (Rafferty, 2008; UNODC, n.d., UNODC, 2020), and the use of technologies to groom and exploit children online has grown exponentially recently, with the National Center for Missing and Exploited Children showing an 846% increase in reports between 2010-2015 that correlate the increased use of the internet to sell children for sex (ICAT, 2019).

In Cambodia, almost one-third of children who disclosed subjection to unwanted sexual advances, images, and comments said this occurred via social media (ECPAT, INTERPOL and UNICEF, 2022). Given the expansion of the internet into these regions, exploitation of vulnerable children is not limited to in-person abuse but also online. Children in Thailand, Cambodia, and across the region are vulnerable to OCSEA, induced or groomed into performing 'sex acts through videos and photos on the internet', sometimes involving blackmail and sexual extortion (U.S. DOS, 2022, p. 541). These types of situations, where child sex trafficking, exploitation, or abuse are facilitated through the use of technology and/or shared via online platforms, are considered OCSEA, online child enticement, or online victimisation. It is precisely these issues that are addressed sensitively and in an age-appropriate manner within the games. The process of child online grooming involves an adult establishing a relationship with the child

to facilitate ‘online or offline sexual contact with the child’ (ICMEC, 2017, p. 1). While online grooming is often associated with sexual exploitation and abuse, it is important to note that groomers can manipulate children for any purpose, including to radicalise a child (Reeves et al., 2018) or for financial gain. Given the expansion of technology and internet services, including social media and online gaming platforms, offenders have unlimited access to children on an unprecedented global scale of epidemic proportion, which has resulted in the online grooming of children for sexual abuse or exploitation (ICMEC, 2017). This has been further exacerbated since the COVID-19 global pandemic, where NGOs and law enforcement agencies in Thailand and Cambodia have also reported an increase in OCSEA (U.S. DOS, 2022). It is thus vital to recognise the prevalence of varied forms of child trafficking including organ, labour alongside trafficking for sexual exploitation.

A Holistic Child-Centred, Public Health Response

This growing trend of OCSEA and online grooming, coupled with the increasing popularity of social media platforms and games, economic hardships, and lack of job opportunities in countries such as Thailand and Cambodia, has created the need for innovative approaches and strategies to promote children’s safety. A holistic public health approach has been considered essential to trafficking prevention (Jones et al., 2021; Ravi, 2019), particularly child sexual exploitation and trafficking (Greenbaum, 2020). This issue is becoming more recognised as a widespread and ‘significant global public health issue’ (Recknor et al., 2022, p. 607). The adoption of a public health approach to human trafficking allows the preventative response to move beyond a criminal justice response (Greenbaum, 2020), enabling strategies to be developed based on the needs of specific populations (Jones et al., 2021; United States Department of Health and Human Services, Office on Trafficking in Persons, 2016).

The adoption of this approach from the project’s inception enabled the team to draw on research across multiple disciplines and engage the expertise of a multi-sector focus group. This approach, combined with child-centred resources, ‘...has the potential to provide more integrated, holistic, and creative strategies for programme delivery’ (Jones et al., 2021, p. 3). The approach enables engagement from key stakeholders (i.e. educators, social workers, law enforcement, NGOs) to collaborate with children to create and implement contextualised child-centred, age-appropriate, and play-based approaches to child trafficking and OCSEA.

An example of this comes from one of the Partners, A21. In their approach to trafficking prevention, A21 uses comic books, storybooks, and play-based programmes aimed at primary school-aged children, designed to provide preventative

messages in an accessible, age-appropriate, and child-friendly way (all resources are publicly available: [A21.org/education](https://www.a21.org/education)). From 2016 to 2019, A21 piloted a human trafficking prevention programme with more than 7000 children in Thailand and Cambodia. This programme is aimed at teaching children about their human rights and the risks that can lead to exploitation, championing their young voices and helping them to know how to make informed decisions to protect themselves (Jones et al., 2021). These principles and techniques were incorporated into the design of this project.

Serious, Interactive, Play-Based, and Simulated Games

Serious games that employ hands-on/learning-by-doing approach have been proven to ‘lead to greater student engagement and learning’ (Subrahmanyam & Renukarya, 2015, p 342). While there is much research around the correlation between violent content and violent behaviour, there is an emergence of literature that suggests that non-violent and pro-social content in games can also bring about both short- and long-term positive behavioural changes, including health-related aspects (Subrahmanyam & Renukarya, 2015).

Research also suggests that implementing formal, positive gaming features that use repetitive interactions ‘may help to internalise their messages or themes, thus helping game content to serve as a pathway for learning’ (Subrahmanyam & Renukarya, 2015, p. 341). Simulated environments can target specific areas of concern, such as online grooming and trafficking, and offer an immersive experience for young people to ‘test out’ their reactions in an age-appropriate manner — through a character in the game. Further, they enable children to evaluate situations as they arise in the simulations and, thus, be able to take risks more safely and see the consequences of their actions and behaviours. Recognising the positive impact serious games are already having in promoting change in health behaviours, it makes sense to adopt this strategy as part of the public health response to human trafficking and online exploitation.

Digital games offer other benefits, too: they engage ‘players’ (Minocha & Reeves, 2010), especially children; they facilitate discussion (Hornik & Thornburg, 2010); and they offer immersive and interactive experiences in a ‘safe’ space (De Noyelles et al., 2014) in an authentic, realistic way (Drumhiller et al., 2021) and are argued to promote learning through stimulating educational experiences (Alrehaili & Al Osman, 2022). Finally, when co-designed and created, they are learner-centred rather than teacher-led: the ‘teacher’ becomes the facilitator rather than the disseminator — an important distinction. Increased inclusion of young people in the design of games further emphasises the learner-centred approach vital for sustaining children’s engagement.

The Use of Digital Games with Children in the UK

Over the past decade, two UK-based Partners from the Centre have addressed complex issues, including children's rights, by creating preventative education digital tools (see Table 1). These have been designed to help educate children about online risks in a meaningful way, using immersive, online, 'mock' social media spaces. Established in 2012, the Centre is now a centre of excellence and innovation in the training, research, and practice of interprofessional child protection, teaching, and learning. In addition to its online postgraduate courses in Advanced Child Protection, the Centre, working in partnership with a range of agencies (National Health Service, UNICEF, Sport England, Home Office, Childline), and the PlayerThree gaming company, has pioneered the development of simulated 'serious' digital games on different aspects of child protection.

Using evidence from a series of serious case reviews in the UK, significant risk factors were identified for children being groomed online and/or in person. Serious case reviews (now known as Child Safeguarding Practice Reviews or Child Death Reviews) 'were established under the Children Act (2004) to review cases where a child has died, and abuse or neglect is known or suspected' (SCIE, n.d.). These reviews are conducted by respective local authorities where a child has died or by the national Child Safeguarding Practice Review Panel when a specific case raises issues of a complex nature or is of national importance. These reviews aim to point out improvements needed to safeguard children and promote their welfare (HM Government, 2018 'Working Together').

In response to the serious case reviews' findings on child exploitation and abuse, a suite of simulations involving grooming scenarios was developed by the Centre, using mock social media platforms to enable children to develop strategies, including developing skills of critical evaluation (Reeves & Crowther, 2019) to stay safe in online social media 'cubby holes' (Halder & Karuppanan, 2014) (see Table 1). Some of the approaches and techniques pioneered in the digital simulations developed by the Centre, for example, the use of mock social media accounts, have been carried forward to the development of *May and Bay* and are discussed below.

In a study of professionals using 'Zak' and 'Lottie', 94% of ninety-eight educators who had used the simulations directly with children believed that their students' knowledge and awareness of internet safety and online grooming had increased (Reeves & Crowther, 2019). The study also found that 86% of users thought the simulations were extremely or very effective in prompting discussion and showing how grooming can happen, and 76% agreed that it enabled the students to interrogate issues of radicalisation or sexual exploitation. This principle for learning has been carried over into the EVAC games, where children are encouraged

Table 1 Digital simulations developed by the Centre

Game title	Focus area	Description/audience	Authors
Rosie 1 and 2	Child neglect Child protection assessments	Used for training students and professionals on aspects of home visits and child protection assessments in child neglect cases	Reeves and Shemmings (2011, 2012)
Looking Out for Lottie	Grooming for child sexual exploitation online and in the community	Used to train multi-agency child protection professionals and be facilitated with children	Reeves et al. (2014)
Zak	Grooming for radicalisation	Used to train professionals and to be used in schools as part of Personal, Social, Health, and Economic Education	Reeves et al. (2013)
Maryam and Joe: Behind Closed Doors	Grooming for radicalisation	Depicts the grooming of girls travelling to Syria and right-wing grooming of a young man. Used as part of the UK Prevent strategy	Reeves and Sheryar (2016)
'myCourtroom': Rosie's family go to court	Analysing private and public law from the perspective of the child, family, and social workers	Depicts the transition of child protection cases from private to public law. Developed for use by Children and Family Court Advisory and Support Service (CAFCASS) and Local Authority Social Services Departments	Reeves et al. (2015)
Crossing the Line	Grooming in gangs, county lines, and criminal exploitation	Used with professionals in multi-agency settings to apply contextual safeguarding principles when tackling youth violence	Soutar and Reeves (2020)

to examine and discuss the safety of *May and Bay* at key points in the story.

The Centre has also designed suites for professional training that depart from traditional video role plays and paper-based case studies as teaching and learning tools (Kinney & Aspinwall-Roberts, 2010). Working in partnership with PlayerThree gaming company, ‘Rosie’ engages child protection practitioners in new ways to develop their ‘micro-skills’, including the communication and decision-making skills needed when investigating allegations (Forrester et al., 2007) or undertaking direct work with children. ‘Rosie’ enables professionals to visit and revisit high-frequency, complex decision-making points in a case, each requiring emotional intelligence (Howe, 2008) and critical thinking, but which are also saturated in powerful and confusing emotions or ‘hot cognitions’ (Kneebone et al., 2006). This approach has been integrated into the EVAC game via the gameplay to help children unpack the emotions that *May and Bay* are feeling, for example, when they realise they have been groomed.

Collaborative Design of the EVAC Game

A public health approach to human trafficking prevention allowed the project partners to adopt holistic strategies with all key stakeholders, including children, ensuring that a collaborative process is at the centre of this project. The Partners are a globally diverse blend of experts in their respective fields, connected via a common network. The team includes organisations working with children on the ground in preventative education and with survivors of human trafficking, as well as policy development and academic research. Collaboration between the project team brought a multi-disciplinary approach and global perspective to the project.

As noted earlier, the Partners adopted a child-centred approach, allowing the team to amplify children’s voices throughout the game by working collaboratively with children in the development and design process (Holland, 2009). Hearing the voices of vulnerable children within the care system and also within research has been a growing movement (Holland, 2009; Independent Care Review, 2020) encouraged by children’s rights perspectives, and this has been an essential ingredient of this project, ensuring the digital game is culturally meaningful and relatable to children. The need to promote the voice of the child and their right to express their views on issues directly affecting them freely also aligns with Art. 12 of the UNCRC. To achieve this, the development and design process of the game included feedback from focus groups comprising identified groups of children (8–14 years old) and a range of stakeholders/professionals.

The ethical engagement of key stakeholders was facilitated by the guidelines and policies of the organisations working directly with children in Thailand and Cambodia as part of their daily work. These policies have at their centre a participatory, child-centred approach, where children’s views are sought at each stage of any development. Informed consent was also sought from children and their parents/legal guardians. The engagement of children and other stakeholders in the consultative process was approved by the ethics review committee of the University of Kent. The project team took utmost care to ensure the consultation process ‘does no harm’ to its participants and to uphold the principles of confidentiality, anonymity, and data protection.

As a result of the pandemic, the project team had to re-evaluate how the focus groups would be conducted, moving to online surveys instead of face-to-face groups. Although the pandemic disrupted a lot of elements of the project, the shift to online surveys actually opened up the participant group to include more children and professionals from around Thailand and Cambodia. In total, 298 children and 85 professionals — representing 32 NGOs, 9 schools, local government bodies, law enforcement, and other groups — were consulted across Thailand and Cambodia.

The consultation within the focus groups was carried out at different stages, with an iterative feedback process. For example, in the development stage, initial ideas about the content, proposed game features, timing, and training elements were presented for comments, followed by a review of visuals. Professional consultations fed into the training pack, worksheets, safeguarding resources on Moodle (a virtual learning platform), and lesson plans for different age groups to ensure age-appropriateness; further, character likability, cultural context, and their relevance for professionals and children were commented on throughout the game development process as discussed in the following section.

As noted earlier, the co-design approach and intention of including children’s voices early on was influenced by Uğraş et al. (2022). Via focus groups, the voices of the children involved did ultimately influence early design gaming elements in terms of what the lead characters looked like, the props they carried, and the type of bedroom that was depicted. For example, a few children commented on the physical appearance of Bay. One child mentioned that they ‘do not like Bay’s hands—they look weird’ and wanted them to look more human. The illustrators made this change. Another child commented that the characters should ‘dress more modestly/ appropriately’, which was an observation on the first draft illustrations also shared by some professionals. As a result, the outfits of the characters were reviewed and edited. Further, when the children were asked what celebrities they liked, several children mentioned ‘BTS’, the Korean boy band, resulting in a poster of Jimen (from BTS) appearing in May’s bedroom.

Feedback from Professionals and Children During Game Development

Past experience in developing digital games for preventative education suggests that one of the key elements for a serious game to be effective is the ‘likability’ and engagement with the characters by the players (Abirached et al., 2011) as evidence indicates that the more likeable and relatable the characters are, the greater the children would interact with the game (Hanus & Dickinson, 2019). Gaining this was, therefore, a clear aim of the consultation process.

In this project, among the initial child stakeholder group, 18/21 expressed a liking for May, with 15 indicating a desire to be friends with her. Regarding Bay, 13/21 liked the character, and nine said they would play with him, and the rest were unsure. Children provided valuable feedback on character improvements, expressing a preference for more modest dressing and citing dislikes such as Bay’s hands and May’s posture — which the design team implemented. Interestingly, initial concerns from professionals about potential dislikes from children regarding other character elements were unfounded upon actual feedback from the children. There are always difficulties in appealing to a large age range of children and adults from different backgrounds, but the feedback from children was significant and informed the development of *May and Bay*, including how kind May’s mum looked and the appearance of the teacher, all significant protective characters in the game.

An example of incorporated feedback from the children’s focus group was the idea of ‘stars’, endorsed as a popular feature to obtain points throughout the games, thus introducing the element of competitiveness (Buchinger & da Silva Hounsell, 2018). The stars were kept as overt rewards as they were a clear indicator of progress and getting answers right and a general scoring feature that 17/21 children liked. Anecdotally, in the pilot roll-out, the trainers reported observing groups of children cheering as they earned stars, sparking fun and a playful competition in the classroom.

The consultations with children also informed more substantial game design features and drove critical conversations about Thailand and Cambodia’s contemporary child protection contexts. For example, one of the aims of the games was to educate children on where to go for help if they need it in relation to their human rights, as well as protection from abuse either online or in the community. In response to this question, the majority expressed they would go to their parents (14/21); 5/21 would go to teachers, and only 2/21 to the police, thus becoming apparent that children may not readily seek help from the police, a strong cultural message often relayed in the UK. For this reason, different professional voices are used throughout the game to reinforce that trusted adults can be found in many agencies and

within families rather than solely focusing on the police (i.e. teachers, social workers, police officers, parents, guardians, or extended family members). Further, the decision to use a wide representation of ‘trusted adults’ was also to avoid depicting only one form of trusted adult that may in reality, be the abuser for some children.

A total of 28 professionals responded from the first consultation, including representatives from teachers, police, government officials, social workers, and NGO social workers. Professionals provided feedback similar to that of children, suggesting improvements for the characters; noting characters seemed slightly older than the target age range for the games. Other comments included observations that May’s skirt was too short; Bay should have a backpack instead of satchel, which is more common for school children in this region; and Bay’s hair was perceived to be too long. All of these comments were addressed in the updated design.

There were some comments on the *style* of the characters — including making them more stylised to appeal to young people from Thailand and Cambodia. This was discussed at length by the designing team, who looked at particular iterations of characters, and based on previous work, the style was aimed at being influenced by the ‘Pixar’ approach, blended with realism. Given the complexity of the topic, having characters who looked like aliens or highly stylised (e.g. a rapper), it was generally felt this would make the game unrelatable. Skin tone was also mentioned, and the team agreed that different skin tones should be represented in the range, as should differences in the weight and height across all characters. The team was thus able to tailor the game to the specific needs of the target populations from the region, depicting multiple cultures rather than one specific country. For example, the school uniforms and hairstyles of the characters were standardised, incorporating features reflective of both Thailand and Cambodia. Profiles of traditional Thai and Khmer (Cambodian) marketplaces were combined, and the typical characteristics of a school were merged. The project team also ensured localised art and recognisable elements like KPOP groups were featured to encourage an additional subconscious connection.

Theoretical Analysis of the Game

A child’s ability to freely express themselves, to seek and receive information, and to use creative platforms of their choosing is a foundational right (Art. 13(1), UNCRC). It was essential that the project facilitated safe and creative spaces for children to express themselves and their feelings while learning about OCSEA, child trafficking, and safeguarding. One of the game’s scenarios looks at the dynamic

interplay between the child's access to technology and digital devices such as a phone, the role of a groomer, and a fake modelling agency/studio in the local community as a social space navigated by children. Firmin's (2020) contextual safeguarding framework identifies the value and significance of peer relationships as well as the risks, vulnerabilities, and interventions within the social, geographical, and digital spaces used by children and takes into account the weight of harm emanating from specific social space(s) (Featherstone et al., 2020). To draw the contextual safeguarding elements directly into the game, children are invited to evaluate the respective safe and unsafe elements of marketplaces when navigating them during the day and at night, on their own or with friends or parents.

The game recognises the interplay between children's choices and the structural and environmental constraints (Firmin, 2020; Firmin & Lloyd, 2020). Eleven-year-old May makes 'risky' and 'safe' choices against a backdrop of many interacting aspects of her social and digital environment. For example, should she go alone to meet a stranger she has met online, purporting to be a woman from a photography agency? Or should she not go at all? The game supports the development of 'digital competency' (Lloyd, 2020, p. 799) among children and professionals by promoting their awareness and knowledge of online harms emanating from the interplay of technology and children's micro, meso, and macro environments and a range of different people who may be 'safe' or 'unsafe'. It recognises children, peers, parents, carers, teachers, police officers, social workers, media, legislators, and local non-governmental and international aid organisations as potential 'attractors' or 'agents within the system' (Hassett & Stevens, 2015, p. 101; Turner et al., 2019) whose combined efforts, activities, and actions are capable of changing the way child safeguarding systems can respond/emerge.

By focusing on the broader context of the child's potential abusive experience and the interplay between their environments via the digital and face-to-face elements of the game, it not only 'extends the locus of child protection thinking from home to the [wider] environment' (Barlow et al., 2021, p. 7), but moves away from victim blaming/responsibilisation. In the 'games within the game', children are presented with maps representing typical places within their communities and asked to assess if these are safe places to 'go on their own, with a friend or with a parent, or are not safe to go at all'.

In addition to the maps, the children complete a 'risk assessment' for May, who goes to meet the groomer utilising skills of critical analysis to assess if May should go at all (the answer being 'no'), who May should take with her before she went (a parent or trusted adult), and what safeguards children can put in place to protect themselves more generally in the community.

As noted above, the intersection of the social, political, economic, and cultural conditions in Thailand and Cambodia compounds the vulnerabilities of children to online and offline exploitation in local communities and beyond state borders. Recognising that social environments in which children live are not stable systems and that the interaction of multiple systems and subsystems is in a constant state of flux, this game draws from some tenets of complex systems theory. The idea that systems are complex, self-organising, and unpredictable (Reed and Harvey, 1992 as cited in Smith, 2019) can point to a bleak picture for effecting change. However, the project aims to address the complexities of OCSEA and child trafficking and equip children to safely navigate their way through the unpredictability of their environments with practical, child-friendly tools.

Complex systems theory highlights the need to acknowledge the non-linear nature of systems' functioning, but also denotes that there are points in every system at which intervention can be possible and potentially effective (Healy, 2005). Complex systems have 'bifurcation' points, where potential intervention can create change. As Stevens and Cox (2008, p. 1326) write, bifurcation is a 'point at which the system oscillates between two points'. The idea of bifurcation reiterates that a timely and relevant action/intervention at bifurcation points can lead to positive change. Safeguarding children from harm (both online and offline) requires identifying those points within interacting systems. Consequently, the games enable children to identify key people and resources within complex systems within their own cultural environments (i.e. trusted adults, safe spaces, and reporting mechanisms (hotlines)) that can positively affect safety. Additionally, the games create an awareness and appreciation of their human rights in different contexts and how children can effectively traverse between different systems.

In May's scenario, the dynamic interplay between experiences of flattery, shame, self-blame, fear, and intimidation is showcased by 11-year-old May when Chakrii (the groomer) threatens to distribute/share sexualised images of May taken without her knowledge and consent. May's situation demonstrates the oscillation between her feelings of shame and the supportive responses from her support system (i.e. May's mother, school, social worker, and police), leading to a positive outcome for May and the criminal justice system. The game teaches children to recognise potential patterns of behaviour and support available within those systems and the likely consequences of varied actions, for example asking for support. This is also demonstrated through the choices that 12-year-old Bay makes when confronted with opportunities for irregular border crossing. Bay reaches out to his father (a trusted adult) to check if crossing the border without the appropriate documentation could be a safe option for him in gaining employment. His father's response and that of the authority figures in the game reinforce the

right course of action while simultaneously not vilifying those who have to cross irregular borders.

Another example in the final scene of May's game is where the social worker reinforces that the grooming was not her fault, although she may be experiencing feelings of shame and self-blame. Participants are encouraged to complete a circle of trust activity identifying the trusted adults in May's support system that she can reach out to as a preventative measure for the future. Similarly, in the final scene of Bay's scenario, which addresses the online grooming of boys, participants see him reach out to and be supported by his father and cousin (Bay's family support system). These features of the game emphasise the key messages about safety and support and were noted as useful by professionals, as is exemplified in the words of a professional who used the game:

This game is a great tool for not only educators but also parents to create the appropriate topic of conversations about online safety, and help guiding children and young people through it with easy-to-understand contents and world-class graphic (NGO manager January 2022).

By starting from a position where online and community abuse are seen as complex and multifaceted interactions, the games expose children to various systems and people who can help them. The scenarios further help the children navigate choices and decisions they make daily (which ultimately affect their safety) and highlight how immersive, interactive resources like *May and Bay* can be age-appropriate mediators of preventative education around complex safeguarding situations.

An important aspect to note about the overall design of *May and Bay* is the format in which the Partners chose to engage the player. Initially, the game was visualised as being a detective story with the player gradually moving forward through the game unpacking clues of the grooming as they went. However, it soon became clear that this approach was not valid as it assumed players as young as eight would know what grooming was and could recognise quite subtle manifestations of it without any prior learning. Instead, the Partners adopted a retrospective approach where an older May introduced and set the scene of her story to unfold to the player, essentially, starting off where the player was. With Bay's scenario, the approach was more 'come along with me and see my world' and the events unfolded through Bay's eyes. Applying the different stages of cognitive development (Piaget, 1971) to the development of the game, the Partners could determine how complex concepts like grooming can be introduced and understood by children, ensuring that the game's content is aligned with the cognitive abilities of an 8-year-old. These elements of the game's design also model a solution-focused approach (Brief, 2024); rather than

problematizing the issues, solutions are constructed with interactive steps on how to (Winbolt, 2010, 21) move the characters towards safety.

May and Bay drew in design structures which had been successful in other games designed by PlayerThree and the Centre. For example, the mock social media platforms replicated on May's phone have been a consistently used element in previous games and, in relation to Vygotsky's theoretical approach of framing an issue to enable the user to unpack learning, interrogating 'phone messages' and reflecting on them is a popular feature. Moreover, seeing Bay interacting with his online groomer is another example of framing and interrogation, with the player gradually seeing the strategies Bay uses to critique the grooming that is happening and modelling the resources he uses to help him (his dad and cousin as well as modelling to players how to safeguard his profile). The players immerse themselves in the experiences of the characters and learn to critically evaluate risks and safety within the online environment and such immersive experiences are proven to enhance long-term retention of learning (Nimmagadda & Murphy, 2014).

Technical Challenges

There have been numerous technical production challenges to overcome to bring this project to life. The technical team needed to amalgamate characters, animations, lip-sync, and dialogue in multiple languages. However, unlike real-time animations, these could not be 'played out' linearly, so everything is designed with a modular framework in mind.

Starting with a basic, text-based dialogue engine, PlayerThree crafted a toolset that included staging for backgrounds, objects, and characters and the ability to trigger character animations and emotions on demand. The characters are animated, featuring full-lip-sync capability, as well as a range of gestures and emotions required, which can be triggered when required in line with the dialogue. However, as a multilingual production, this proved to be a complicated process. Once the engine for multilingual capability was adopted, the team had to process every individual clip of audio for lip-sync animation and then link this technology into the game engine for use. This had to be done for every clip in every language, as the audio is very different in content and duration. Then, the character and scene animations needed to be triggered, based on the duration of the actual audio output to maintain a more natural flow of conversation. Although complex, the result shows the characters imitating a more natural conversational inflection.

To make the game more engaging, a wide range of bespoke interactive elements were woven into the project, including emoji-based mood sensors, non-linear icon-based dialogue, and the use of maps and interfaces that emulate

classic ‘real-world’ gaming that will resonate with the target audience, i.e. children.

Pilot Roll-Out

The roll-out of the game began mid-year and ran throughout the last 6 months of 2022. The Partners based in the region (A21, ECPAT) were able to pilot the game in Thai, Khmer, and English languages with 2763 children. Part of the initial plan for the project was to work with child stakeholders face-to-face to gather feedback; however, due to COVID-19, this had to be done online. Consequently, there was an additional layer of anonymity for the children and increased participation through digital snowballing. Children were approached digitally via their schools by A21 and through teachers who knew the children. No child who was known to have had lived experience of online or face-to-face abuse was overtly approached.

Another essential element of the roll-out and of the game generally was the emphasis on professional training prior to the facilitation of the game. Part of the effective strategy developed by the Partners on this project and other projects has been the emphasis on training professionals before using the digital games with children to ‘level up’ professional knowledge based upon the latest research and theory. In particular, the Centre’s approach has been to tap into the zone of proximal learning through scaffolding the learning where access to simulative games is complemented with training on how to use the resource, wider contextual research highlights, and key themes of the digital game. For example, ‘Looking out for Lottie’ (see Table 1) draws attention to serious case reviews, looks at best practices in tackling child sexual exploitation, highlights the parameters of the law, and directs professionals to up-to-date resources. This model has been transferred to this project, and as such, all professionals are invited to undergo *May and Bay*-specific training, online or face-to-face, and provided access to training materials for different ages of children.

A21 and ECPAT were able to train 189 trainers on how to facilitate the Thai and Khmer versions of the game, and the UK-based partners were able to train an additional 107 trainers in English via Zoom, enabling the team to reach many more educators and key stakeholders across the region. The training was conducted in person or online through Zoom, using small group training for up to 15 participants. The sessions were fully interactive and trainees were given access to the *May and Bay* simulation and were encouraged to work through the simulation scene by scene in small groups, coming together at regular points to discuss learning points as a group. This process enabled trainees to experience the gameplay elements of the game while simultaneously learning about the research, theories, and legislative frameworks informing each scene.

The project team, focus groups, and design of the game were just one example of the breadth of impact a multi-disciplinary team can have in implementing preventative educational games. Contribution from multiple agencies to the game has been widespread across the region, a consequence of which has led to a diversity of facilitators using the game in various contexts. The distribution and facilitation of the game involved collaboration with government bodies, NGO partners, and international and local schools. Games were promoted and played in various contexts, ranging from large-scale national conferences to rural community activities. This required diverse distribution methods, including using high-speed internet, computer rooms, and projectors, in contrast to hot-spotting laptops from staff phones in communities without internet, or using one projector that the team brought with them and, occasionally, an offline version of the game and handouts. The project team provided internet and devices for the engagement with the game, in schools and communities who did not have internet access or lacked sufficient capabilities to adequately run the game, ensuring no participant incurred out-of-pocket expenses.

Lessons Learned

As part of the project delivery, the team had to utilise an alternative strategy when COVID-19 became a global problem. The World Health Organisation declared COVID-19 a global pandemic on 20 March 2020, and, like many international projects, *May and Bay* became subject to delays and unforeseen problems. For example, the UK-based team could not travel to Thailand and Cambodia to gain face-to-face feedback from the children or stakeholders during the build to work with A21 and ECPAT on the pilot training.

Illness also affected the team as a whole at different times, altering timelines and partner input. Also, the combined and delayed impact of the second and third waves of COVID-19 in the UK, coupled with the invasion of Ukraine, affected the developers of the game PlayerThree (the artist and her family were Ukrainian). These were factors that could not have been predicted at the start of the project. However, stakeholder ‘consultations from a distance’, regular communication through monthly meetings and sub-group meetings, and staff covering for those who were ill ensured that although the project was delayed at times, it kept going, and the games were delivered as scheduled.

Carrying out auditions for the voices in Thailand and Cambodia also came with challenges as local dialect was essential to promote cultural realism. Unfortunately, the timing of the recordings coincided with more regional outbreaks of COVID-19, and thus voice recordings had to be cancelled because actors were not available or able to travel to recording studios. A great deal of local consultation happened with

the choice of voices and while this has led to culturally accurate representations in the games, widespread consultation in the regions as well as the sharing of words from Thai and Khmer to English took time to achieve. An example of this is that the word ‘grooming’ in English did not have a well-established Thai alternative; therefore, the team had to explain the term rather than simply use the word. To do this, the ‘teacher character’ provided a child-friendly definition, and the term grooming was revisited throughout the game to embed learning. Furthermore, the term ‘subway’ held different interpretations even within our English-speaking team, ranging from an underpass to a train station. This variance caused initial confusion regarding the depiction on the map and subsequently affected how children would respond to the question, resulting in a decision to replace the word entirely to ensure clarity.

An additional challenge was that not all schools in the region had a shared understanding of more comprehensive safeguarding policies, which was addressed as it became apparent to the partners in the training and documents accompanying the games. This is a common global challenge. As the pilot progressed, the team realised that wider safeguarding knowledge was vital to include both in the training and training materials, including more general information on the online platform about safeguarding policies in schools. Therefore, part of the safeguarding elements of the game is to ensure that all professionals who use the game are trained to use the games and think about safeguarding in their local context. Professionals were trained either online in English by the Centre or locally by A21 or ECPAT before their use of the game with children. Additionally, the recognised need to train in different languages provided flexibility and access for the facilitation of professionals.

Conclusion

This article has highlighted the complex journey, during a global pandemic, of the collaborative design of a preventative educational game for children in Thailand and Cambodia. It has outlined the value of serious games in enhancing digital safety and resilience among children through innovative preventative education. The design and development process of the *May and Bay* game exemplifies the significance of child-centred, human rights-based approaches and equitable partnerships in co-creating solutions for complex child protection issues like OCSEA, grooming, child trafficking, and community safeguarding. The project, overall, emphasised the crucial role of providing children a voice in matters affecting them and acknowledging them as central figures in their own lives. It also highlighted the need for a public health approach to

be adopted in the prevention of child abuse and exploitation in varied forms, recognising the importance of stakeholders from all fields, as well as children contributing to the design.

May and Bay aims to reduce the likelihood of children becoming victims of sexual grooming, OCSEA, and child trafficking, through prevention, education, and awareness of the potential risks posed both online and in the community. It allows children to evaluate those risks critically and thus promotes their informed and safer engagement in the digital world and in their community, by being able to identify safe people and places (Firmin, 2019). Since children may not always be able to identify or articulate potential dangers in the areas of risk addressed by *May and Bay*, this interactive simulation effectively breaks down barriers by encouraging open discussions in groups facilitated by trained facilitators. These facilitators have access to training materials, as well as links to local support networks and resources, fostering a more informed and supportive environment.

The game offers children the much-needed safer space to explore risks, choices, and sources of support that they encounter in the navigation of their social interactions, digital or otherwise. By framing these complex topics in age-appropriate, child-friendly ways familiar to children, discussions in the games have the potential to change behaviour and emphasise safe people/trusted adults and identify potentially dangerous situations that children may find themselves in. By creating mock social media platforms through which some of the grooming occurs or by highlighting vulnerable and potentially unsafe places in the community, children are able to learn and make mistakes in a safe space. Discussion about these issues in this safe space has the potential to reduce embarrassment and shame for children, some of whom may have already been subjected to grooming or exploitation.

May and Bay provides agents of change with culturally sensitive tools to educate children. The takeaway messages from this project are simple: As the issues of grooming, OCSEA, and child trafficking continue to expand and traverse across new spaces, on and offline, prevention strategies need to adapt. To tackle these issues, it is necessary to ensure programmes remain culturally relevant and engaging for children. To do this, children need their voices to be heard alongside experts across all disciplines. Creating digitally safe spaces like the *May and Bay* game allows children to experience and navigate real-life dangers in a simulated, controlled, and age-appropriate environment, where failure does not result in a lifetime of trauma.

The next stage of the process will be an evaluation and analysis of the embedded game data and offline observations from the longer roll-out of the project.

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References

- Abirached, B., Zhang, Y., Aggarwal, J. K., Tamersoy, B., Fernandes, T., Miranda, J. C., & Orvalho, V. (2011). Improving communication skills of children with ASDs through interaction with virtual characters. *2011 IEEE 1st International Conference on Serious Games and Applications for Health (SeGAH)*, Braga, Portugal, 1–4. <https://doi.org/10.1109/SeGAH.2011.6165464>
- Alrehaili, E., Al Osman, A., & H. (2022). A virtual reality role-playing serious game for experiential learning. *Interactive Learning Environments*, 30(5), 922–935. <https://doi.org/10.1080/10494820.2019.1703008>
- Archbold, L., Verdoodt, V., Gordon, F., & Clifford, D. (2021). Children's privacy in lockdown: Intersections between privacy, participation and protection rights in a pandemic. *Law, Technology and Humans*, 3(1), 18–34. <https://doi.org/10.5204/lthj.1803>
- ASEAN [Association of Southeast Asian Nations]. (2021). *Plan of action to implement the ASEAN-United States strategic partnership*. Retrieved December 13, 2022 from <https://asean.org/asean-2020/wp-content/uploads/2021/03/15.-ASEAN-US-Plan-of-Action-2021-2025-Final.pdf>
- Barlow, C., Kidd, A., Green, S. T., & Darby, B. (2021). Circles of analysis: A systemic model of child criminal exploitation. *Journal of Children's Services*, 17(3), 158–174. <https://doi.org/10.1108/JCS-04-2021-0016>
- Brief. (2024). *What is the solution focused approach?* Retrieved [18 April 2024]. <https://www.brief.org.uk/about-us/what-is-the-solution-focused-approach>
- Broadband Commission (2019) Education can significantly help children and young people with online safety.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Buchinger, D., & da Silva Hounsell, M. (2018). Guidelines for designing and using collaborative-competitive serious games. *Computers and Education*, 118(2018), 133–149, ISSN 0360-1315. <https://doi.org/10.1016/j.compedu.2017.11.007>
- Contextual Safeguarding Network. (2020). *What is contextual safeguarding?* Retrieved [28 July 2022] from <https://www.csnetwork.org.uk/en/about/what-is-contextual-safeguarding>
- De Noyelles, A., Hornik, R., Johnson, R. D. (2014). Exploring the dimensions of self-efficacy in virtual world learning: Environment, task, and content: MERLOT. *Journal of Online Learning and Teaching*, 10(2).
- Department for Education (2018) Working together to safeguard children: a guide to inter-agency working to safeguard and promote the welfare of children. London: Department for Education.
- Drumhiller, N. K., Wilkin, T. L., & Srba, K. V. (2021). Introduction to simulation learning in emergency and disaster management. In N. K. Drumhiller, T. L. Wilkin, & K. V. Srba (Eds.), *Simulation and game-based learning in emergency and disaster management* (pp. 1–26). IGI Global. <https://doi.org/10.4018/978-1-7998-4087-9>
- ECPAT International. (2023). *Trafficking in Thailand: The demand fuels child trafficking for sexual purposes*. Retrieved [March, 23 2022] from <https://ecpat.org/story/trafficking-in-thailand-the-demand-fuels-child-trafficking-for-sexual-purposes/>
- ECPAT, INTERPOL and UNICEF. (2022). *Disrupting Harm in Cambodia: Evidence on Online Child Sexual Exploitation and Abuse. Global Partnership to End Violence Against Children*. Retrieved on: 17 may 2024. Accessed from https://www.end-violence.org/sites/default/files/2022-09/DH_Cambodia_ONLINE_final_JS%20%281%29.pdf
- Featherstone, B., Firmin, C. E., Gupta, A., Morris, K., & Wroe, L. (2020). *The social model and contextual safeguarding—Key messages for practice*. Contextual Safeguarding Network. Retrieved [July 20 2022] from <https://uobrep.openrepository.com/handle/10547/624925>
- Firmin, C. (2019). Contextual safeguarding: Theorising the contexts of child protection and peer abuse. In J. Pearce (Ed.). *Child sexual exploitation: Why theory matters*. (pp.63–83). Policy Press. <https://policy.bristoluniversitypress.co.uk/child-sexual-exploitation-why-theory-matters>
- Firmin, C. (2020). *Contextual safeguarding and child protection: Re-writing the rules*. Taylor and Francis Group. <https://doi.org/10.4324/9780429283314>
- Firmin, C., & Lloyd, J. (2020). *Contextual safeguarding – A 2020 update on the operational, strategic and conceptual framework*. University of Bedfordshire: Contextual Safeguarding Network. Retrieved [10 March 2022] from <https://www.csnetwork.org.uk/en/about/what-is-contextual-safeguarding>
- Forrester, D., Kershaw, S., Moss, H. and Hughes, L. (2007). Communication skills in child protection: how do social workers talk to parents? *Child and Family Social Work*, 38, 1302–1319.
- Georgiev, D. (28 February 2023). *How much time do people spend on social media in 2023?* Techjury. Retrieved [May, 11 2023] from <https://techjury.net/blog/time-spent-on-social-media/#gref>
- Global Alliance. (2021). *New report shows the scale of child sexual exploitation and abuse online is increasing, calling for a stronger collective global response*. WeProtect Global Alliance. Retrieved [October, 11 2022] from <https://www.weprotect.org/wp-content/uploads/WeProtect-Global-Alliance-GTA-21-press-release-all-quotes.pdf>
- Greenbaum, J. (2020). A public health approach to global child sex trafficking. *Annual Review of Public Health*, 41(1), 481–497. <https://doi.org/10.1146/annurev-publhealth-040119-094335>
- Halder, D., & Karuppanan, J. (2014). Patterns of sexual victimization of children and women in the multipurpose social networking sites. In C. Marcum & G. Higgins (Eds.), *Social networking as a criminal enterprise* (pp. 125–144). CRC Press. <https://doi.org/10.1201/b16912>
- Hanus, M. D., & Dickinson, T. M. (2019). The (faulty) assumption that male players prefer male characters: How character desirability and likability influence video game purchase intentions and enjoyment. *Psychology of Popular Media Culture*, 8(4), 395–401. <https://doi.org/10.1037/ppm0000191>
- Hassett, P., & Stevens, I. (2015). Child protection practice and complexity. In A. Pycroft & C. Bartollas (Eds.), *Applying*

- complexity theory: Whole systems approaches to criminal justice and social work* (pp. 97–112). Policy Press. <https://policy.bristoluniversitypress.co.uk/applying-complexity-theory>
- Healy, K. (2005). *Social work theories in context: Creating frameworks for practice*. London: Palgrave Macmillan. <https://search.worldcat.org/title/57391397>
- Hedderson, M. M., Bekelman, T. A., Li, M., Knapp, E. A., Palmore, M., Dong, Y., Elliott, A. J., Friedman, C., Galarce, M., Gilbert-Diamond, D., Glueck, D., Hockett, C. W., Lucchini, M., McDonald, J., Sauder, K., Zhu, Y., Karagas, M. R., Dabelea, D., & Ferrara, A. (2023). Trends in screen time use among children during the COVID-19 pandemic July 2019 through August 2021. *JAMA Network Open*, 6(2). <https://doi.org/10.1001/jamanetworkopen.2022.56157>
- HM Government. (2018). *Working together to safeguard children: A guide to interagency working to safeguard and promote the welfare of children*. The Stationery Office. https://www.nottinghamcity.gov.uk/media/zrqesyrk/working_together_to_safeguard_children_2018-2.pdf
- Holland, S. (2009). Listening to children in care: A review of methodological and theoretical approaches to understanding looked after children's perspectives. *Children and Society*, 23(3), 226–235. <https://doi.org/10.5204/lthj.1803>
- Hornik, S., & Thornburg, S. (2010). Really engaging accounting: Second life as a learning platform. *Issues in Accounting Education*, 25(3), 361–378.
- Howe, D. (2008). *The emotionally intelligent social worker*. London: Palgrave MacMillan.
- ICAT (Inter-Agency Coordination Group against Trafficking of Persons) (2019) Human trafficking and technology: Trends, challenges and opportunities, Issue, Brief 7. Retrieved May 17, 2024. Accessed from https://icat.un.org/sites/g/files/tmzbd1461/files/human_trafficking_and_technology_trends_challenges_and_opportunities_web.pdf
- ICMEC [International Centre for Missing and Exploited Children]. (2017). *Online grooming of children for sexual purposes: Model legislation and global review*. Retrieved [October 18 2022] from https://www.icmec.org/wp-content/uploads/2017/09/Online-Grooming-of-Children_FINAL_9-18-17.pdf
- Independent Care Review. (2020). *Participation and engagement report independent care review Scotland*. <https://thepromise.scot/resources/2020/evidence-framework-participation-and-engagement-report.pdf>
- Jones, S., Ellery, V., Rhodes, J., & Hull, B. J. (2021). Adequately equipping our children: The need for child-centered, play-based approaches to human trafficking prevention. *Journal of Human Trafficking*, 10(1), 220–230. <https://doi.org/10.1080/23322705.2021.2007462>
- Kinney & Aspinwall-Roberts. (2010). The use of self and role play in social work education [December 2010]. *Journal of Mental Health Training* 5(4), 27–33.
- Kujala, S. (2003). User involvement: A review of the benefits and challenges. *Behaviour & Information Technology*, 22(1), 1–16. <https://doi.org/10.1080/01449290301782>
- Lancu, P. and Lanteigne, I., (2022). Advances in social work practice: Understanding uncertainty and unpredictability of complex non-linear situations. *Journal of Social Work*, 22(1), 130–149. <https://doi.org/10.1177/146801732098057>
- Livingstone, S., Mascheroni, G., & Staksrud, E. (2018). European research on children's internet use: Assessing the past and anticipating the future. *New Media and Society*, 20(3), 1103–1122. <https://doi.org/10.1177/1461444816685930>
- Lloyd, J. (2020). Abuse through sexual image sharing in schools: Response and responsibility. *Gender and Education*, 32(6), 784–802. <https://doi.org/10.1080/09540253.2018.1513456>
- Kneebone, R., Nestel, D., Wetzel, C., Black, S., Jacklin, R., Aggarwal, R., Darzi, A. (2006). The human face of simulation: Patient-focused simulation training. *Academic Medicine*, 81, 919–924.
- Minocha, S. & Reeves, A. (2010). Designing for usability and accessibility in 3D virtual worlds. *Learning Technology*, 12(2), 4–6.
- Nimmagadda, J., & Murphy, J. (2014). Using simulations to enhance interprofessional competencies for social work and nursing students. *Social Work Education: The International Journal*, 33(4), 539–548. <https://doi.org/10.5204/lthj.1803>
- Ofcom [Office of Communications]. (2015). *Children and parents: Media use and attitudes*. United Kingdom, Ofcom report. Retrieved [20 January 2016] from <https://www.ofcom.org.uk/research-and-data/media-literacy-research/childrens/children-parents-nov-15>
- OSCE [Organization for Security and Co-operation in Europe]. (2022). *National referral mechanisms: Joining efforts to protect the rights of trafficked persons*. Retrieved [October, 12 2022] from https://www.osce.org/files/f/documents/f/5/510551_0.pdf
- Piaget, J. (1971). The theory of stages in cognitive development. In D. R. Green, M. P. Ford, & G. B. Flamer (Eds.), *Measurement and Piaget*. McGraw-Hill. <https://archive.org/details/measurementpiaget000ctbm/page/n7/mode/2up>
- Rafferty, B. (2008). The impact of trafficking on children: Psychological and social policy perspectives. *Child Development Perspectives* - Wiley Online Library
- Ravi, A. (2019). Human trafficking and public health. In R. L. Dalla & D. Sabella (Eds.), *Routledge international handbook of human trafficking: A multi-disciplinary and applied approach* (pp. 262–285). Taylor and Francis Group. <https://doi.org/10.4324/9781315277035>
- Recknor, F., Di Ruggiero, E., & Jensen, E. (2022). Addressing human trafficking as a public health issue. *Canadian Journal of Public Health*, 113(4), 607–610. Retrieved [August 2023]. <https://doi.org/10.17269/s41997-022-00642-8>
- Reeves, J. et al. (2015) 'myCourtroom': Rosie's family go to court - A simulation training tool. Centre for Child Protection, University of Kent. Retrieved May 17, 2024 from <https://www.kent.ac.uk/social-policy-sociology-social-research/centre-for-child-protection/trainingsimulations/my-courtroom>
- Reeves, J. & Crowther, T. (2019) Teacher feedback on the use of innovative social media simulations to enhance critical thinking in young people on radicalisation, extremism, sexual exploitation and grooming. *Pastoral Care in Education*, 37(4), 280–296. <https://doi.org/10.1080/02643944.2019.1618377>
- Reeves, J., & Shemmings, D. (2011). *Rosie 1: A serious game simulation on sexual abuse*. University of Kent. <https://www.kent.ac.uk/social-policy-sociology-social-research/centre-for-child-protection/trainingsimulations/rosie-1>
- Reeves, J., & Shemmings, D. (2012). *Rosie 2: A serious game simulation on neglect*. University of Kent. <https://www.kent.ac.uk/social-policy-sociology-social-research/centre-for-child-protection/trainingsimulations/rosie-2>
- Reeves, J., Shemmings, D., & Blake, E. (2014) *Looking out for Lottie: A serious game simulation on child sexual exploitation*. National Health Service. University of Kent. <https://www.kent.ac.uk/social-policy-sociology-social-research/centre-for-child-protection/trainingsimulations/looking-out-for-lottie>
- Reeves, J., Shemmings, D., & Kent Police. (2013) *Zak: A serious game simulation on radicalization and extremism*. Kent Police. University of Kent. <https://www.kent.ac.uk/social-policy-sociology-social-research/centre-for-child-protection/training-simulations/zak>
- Reeves, J., & Sheriyar, A. (2016). *Behind closed doors: A serious game simulation on the radicalisation of young women*. Home Office. University of Kent. <https://www.kent.ac.uk/social-policy-sociology-social-research/centre-for-child-protection/training-simulations/behind-closed-doors>
- Reeves, J., Soutar, E., Green, S., & Crowther, T. (2018). Children and young people's vulnerability to grooming. In S. Cetinkaya (Ed.), *Contemporary perspectives on children, psychology and*

- education (pp 119–134). Intech. <https://www.intechopen.com/books/6327>
- SCIE [Social Care Institute for Excellence]. (n.d.). *Safeguarding children in education. Serious case reviews for education*. Retrieved [June 2023] from <https://www.scie.org.uk/safeguarding/children/education/serious-case-reviews>
- Simon, J., Luetzow, A., & Conte, J. R. (2020). Thirty years of the convention on the rights of the child: Developments in child sexual abuse and exploitation. *Child Abuse and Neglect, 110*, 1–8. <https://doi.org/10.5204/lthj.1803>
- Smith, H. (2019). Omniscience at the edge of chaos: Complexity, defences and change in a children and families social work department. *Journal of Social Work Practice, 33*(4), 471–480. <https://doi.org/10.5204/lthj.1803>
- Soutar, E., & Reeves, J. (2020). *Crossing the line: A serious game simulation on gangs, country lines, and knife crime*. University of Kent. <https://research.kent.ac.uk/ctl/>
- Stevens, I., & Cox, P. (2008). Complexity theory: Developing new understandings of child protection in field settings and in residential childcare. *British Journal of Social Work, 38*(7), 1320–1336. <https://doi.org/10.5204/lthj.1803>
- Subrahmanyam, K., & Renukarya, B. (2015). Digital games and learning: Identifying pathways of influence. *Educational Psychologist, 50*(4), 335–348. <https://doi.org/10.1080/00461520.2015.1122532>
- Turner, J. R., & Baker, R. M. (2019). Complexity theory: An overview with potential applications for the social sciences. *Systems, 7*(1), 4. <https://doi.org/10.3390/systems7010004>
- Uğraş, T., Rızvanoğlu, K., & Gülseçen, S. (2022). New co-design techniques for digital game narrative design with children. *International Journal of Child-Computer Interaction, vol 31*, 100441. <https://doi.org/10.1016/j.ijcci.2021.100441>
- UNICEF [United Nations Children’s Fund]. (2017). *The state of the world’s children 2017: Children in a digital world*. Retrieved [September 23 2022] from https://www.unicef.org/media/48581/file/SOWC_2017_ENG.pdf
- United Nations Office of the High Commissioner for Human Rights (UNOHCHR) (2000). *Protocol to prevent, suppress and punish trafficking in persons especially women and children, supplementing the United Nations Convention against Transnational Organized Crime Geneva*. Adopted by the General Assembly, 15 November 2000, A/RES/55/25 [Palermo Protocol]. Retrieved [25 July 2023] from <https://www.ohchr.org/en/instruments-mechanisms/instruments/protocol-prevent-suppress-and-punish-trafficking-persons>
- United Nations Population Fund (UNFPA). (2022). *The human rights-based approach*. Retrieved [25 July 2023] from <https://www.unfpa.org/human-rights-based-approach>
- United Nations Sustainable Development Group. (2022). *Human rights-based approach*. Retrieved [25 July 2023] from <https://unsdg.un.org/2030-agenda/universal-values/human-rights-based-approach>
- United States Department of Health and Human Services, Office on Trafficking in Persons. (2016). The power of framing human trafficking as a public health issue. Retrieved May 17, 2024 from <https://www.acf.hhs.gov/otip/resource/publichealthlens>
- UNODC. (2020). *Global report on trafficking in persons*. Retrieved [11 October 2022] from https://www.unodc.org/documents/data-and-analysis/tip/2021/GLOTiP_2020_15jan_web.pdf
- UNODC [United Nations Office on Drugs and Crime]. (2022). *Human trafficking: Defining the crime*. Retrieved [11 October 2022] from <https://www.unodc.org/unodc/en/human-trafficking/crime.html>
- UNOHCHR [United Nations Office of the High Commissioner for Human Rights] (1989). *Convention on the Rights of the Child (UNCRC), 20 November 1989, United Nations, Treaty Series, vol. 1577*. Retrieved [25 July 2023] from <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>
- UNOHCHR [United Nations Office of the High Commissioner for Human Rights] (2014). *Human rights and human trafficking*. Retrieved [25 July 2023] from https://www.ohchr.org/sites/default/files/Documents/Publications/FS36_en.pdf
- U.S. DOS [United States, Department of State]. (2022). *Trafficking in persons report*. Retrieved [10 October 2022] from https://www.state.gov/wp-content/uploads/2022/08/22-00757-TIP-REPORT_072822-inaccessible.pdf
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Mass: Harvard University. <https://doi.org/10.2307/j.ctvjf9vz4>
- Whittle, C. H., Beech, A., & Collings, G. (2013). A review of online grooming: Characteristics and concerns. *Aggression and Violent Behaviour, 18*(1), 62–70. <https://doi.org/10.5204/lthj.1803>
- Winbolt, B. (2010). *Solution focused therapy for the helping professions*. London: Jessica Kingsley Publishers. <https://uk.jkp.com/products/solution-focused-therapy-for-the-helping-professions>
- World Bank. (2022a). *Cambodia overview*. Retrieved [23 September 2022] from <https://www.worldbank.org/en/country/cambodia/overview>
- World Bank. (2022b). *Thailand overview*. Retrieved [23 September 2022] from <https://www.worldbank.org/en/country/thailand/overview>

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