

The opportunity for

digital sexuality education

in East Asia and the Pacific



The Opportunity for Digital Sexuality Education in East Asia and the Pacific

UNICEF East Asia and Pacific Regional Office

Acknowledgements

This report was prepared by the UNICEF EAPRO Gender Section. Karen Humphries-Waa was the lead author while Gerda Binder was responsible for conceptualization, overall guidance and coordination.

The UNICEF EAPRO Gender Team would like to thank all those who contributed data and/or technical expertise, during the research and review process including Sarah Atkinson, Nattaya Boonpakdee, Tingting Chen, Emma Day, Cresit Fitriana, Christine Gave, Hunter Gray, Jinhwa Ha, Afroz Kaviani Johnson, Beena Kuttiparambil, Le Anh Lan, Mehrak Mehrvar, Emilie Minnick, Simon Nazer, Lionel Rogers, Josephine Sauvarin, Arushi Singh, Kabir Singh, Graeme Storer, Amanda Third, Alexander Tyers, Hua Wang and Ian Yee.

Suggested citation

United Nations Children's Fund. The Opportunity for Digital Sexuality Education in East Asia and the Pacific. UNICEF East Asia and Pacific, Bangkok, 2019.

REVIEW REPORT

The Opportunity for
**digital sexuality
education**

in East Asia and the Pacific

UNICEF East Asia and Pacific Regional Office



contents

Acronyms	6
Common terms and concepts	7
Executive summary	8
Methodology	11
Sexual and reproductive health in East Asia and the Pacific	12
Comprehensive sexuality education in East Asia and the Pacific	14
Digital ecosystem in East Asia & the Pacific	17
What do young people look for in digital spaces	20
Existing digital sexuality platforms	23
Worldwide	23
East Asia and the Pacific	25
Mobile apps	25
Websites and/or social media	28
Videos	32
Multimedia suites	35
Digital ecosystem in summary	37
What is the impact of digital sexuality education platforms?	39
Child protection issues and digital media	41
Conclusions and recommendations	44
References	48

List of Figures

Figure 1	Positive impacts of comprehensive sexuality education	14
Figure 2	Barriers to the implementation and effectiveness of comprehensive sexuality education	16
Figure 3	Five of the 10 countries with the longest internet use per day are in East and Southeast Asia	19
Figure 4	What do young people look for online	22
Figure 5	Risks associated with digital media	42
Figure 6	Factors contributing to a young person's risk of harm online	43
Figure 7	Recommendations for the design and implementation of digital sexuality education	47

List of Tables

Table 1	Applications Offering Sexual and Reproductive Health Information and Guidance	27
Table 2	Examples of Websites and/or Social Media Offering Sexual and Reproductive Health Information and Guidance	30
Table 3	Examples of Videos Offering Sexual and Reproductive Health Information and Guidance	34

Acronyms

CSE	Comprehensive Sexuality Education
DPR Korea	Democratic People's Republic of Korea
EAP	East Asia and the Pacific
HIV	Human Immunodeficiency Virus
ITGSE	International Technical Guidance on Sexuality Education
Lao PDR	Lao People's Democratic Republic

LGBT	Lesbian, Gay, Bisexual and Transgender
LGBTI	Lesbian, Gay, Bisexual, Transgender and Intersex
LGBTQIA	Lesbian, Gay, Bisexual, Transgender, Queer/questioning, Intersex and Asexual
MSM	Men who have Sex with Men
NGO	Non-Government Organisation
Q&A	Question and Answer
SMS	Short Message Service
SRH	Sexual and Reproductive Health
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USA	United States of America

Common Terms and Concepts

Chatbot	A computer program designed to simulate conversation with human users, especially over the internet. (Oxford Dictionary)
Comprehensive sexuality education	Is a curriculum-based process of teaching and learning about the cognitive, emotional, physical and social aspects of sexuality. It aims to equip children and young people with knowledge, skills, attitudes and values that will empower them: realise their health, well-being and dignity; develop respectful social and sexual relationships; consider how their choices affect their own well-being and that of others; and, understand and ensure the protection of their rights throughout their lives. (UNESCO)
Edutainment	Video games, television programmes or other material, intended to be both educational and enjoyable. (Oxford Dictionary)

Empowerment	Empowerment involves gaining power and control over one's own life. Empowerment of women and girls involves awareness-raising, building self-confidence, expansion of choices, increased access to and control over resources and actions to transform the structures and institutions which reinforce and perpetuate gender discrimination and inequality. (UN Women)
Gender	Gender refers to the roles, behaviours, activities and attributes that a given society at a given time considers appropriate for men and women. In addition to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, gender also refers to the relations between women and those between men. These attributes, opportunities and relationships are socially constructed, learned through socialization and are context/ time-specific and changeable. Gender determines what is expected, allowed and valued in a woman or a man in a given context. (UN Women)
Gender expression	How a person communicates their gender to others including clothing, hairstyle, voice, behaviour and the use of pronouns. (UNESCO)
Gender identity	How a person identifies as being a man, woman, transgender, third gender or another culturally-specific gender identity. (UNESCO)
Gender norms	Gender norms are ideas about how men and women should be and act. We internalize and learn these "rules" early in life. This sets up a life-cycle of gender socialization and stereotyping. Put another way, gender norms are the standards and expectations to which gender identity generally conforms, within a range that defines a particular society, culture and community at that point in time. (UN Women)
Sex	The classification of people as male, female or intersex, assigned at birth, typically based on anatomy and biology. (UNESCO)
Sexuality	Sexuality is a core dimension of being human which includes: the understanding of, and relationship to, the human body; emotional attachment and love; sex; gender; gender identity; sexual orientation; sexual intimacy; pleasure and reproduction. Sexuality is complex and includes biological, social, psychological, spiritual, religious, political, legal, historic, ethical and cultural dimensions that evolve over a lifespan. (UNESCO)
Sexual orientation	Emotional and sexual attraction to another person or other people, who may be of the opposite gender, same gender or another gender identity. (UNESCO)
Sex positive	Sex positivity involves having positive attitudes about sex and feeling comfortable with one's own sexual identity and the sexual behaviours of others. For example, sex positive people are open to learning about sex and sexual activity, understand the importance of safe sex, consider sex to be a healthy part of life that should be enjoyed and accept others' sexual orientations and lifestyles without judgement. (International Society for Sexual Medicine)
Vlogger	A person who keeps a video blog or vlog i.e. posts short videos of or about something to a personal website or social media account.(Oxford Dictionary)



Executive Summary

Significant opportunities exist to improve the sexual and reproductive health of young people in East Asia and the Pacific: in reducing teenage pregnancy, unsafe abortions, gender-based violence, exploitation, sexually transmitted infections and HIV. Comprehensive sexuality education (CSE) remains a cornerstone in improving the sexual and reproductive health of adolescents, and there has been considerable progress in advancing CSE curricula coverage and implementation. However, barriers remain to the effective implementation of in-person sexuality education, including at socio-cultural, organizational and individual levels.

Around the world, children are gaining increased access to digital technology and going online at younger ages. A growing body of evidence shows that young people are regularly using this digital world as a key source of information about sexuality. This review seeks to understand the opportunity for digital sexuality education by exploring what young people search for online, the range of digital sexuality education platforms currently available in the region, the impact of these platforms and issues of online safety.

While limitations exist in the depth and breadth of digital sexuality media currently available in the East Asia and Pacific region, this review finds that such platforms offer an opportunity to positively impact the sexual and reproductive health, knowledge and behaviours of young people. Digital media provides scope for targeted interventions and the potential to reach adolescent populations at scale, anytime, anywhere. There is a need for more research to better understand how they impact knowledge, attitudes and behaviour and what increases appeal and usefulness for young people. While there is risk of harm online, the consensus is that the digital world offers valuable

opportunities for children and adolescents to learn, communicate and express themselves. There is a need, however, for frameworks to guide the development of comprehensive digital sexuality media and address child protection issues.

Recommendations for design and implementation of digital sexuality education initiatives include:

- 1) Ensure the quality of sexuality education** in digital media through comprehensive technical guidance, digital literacy and citizenship education for children, legislation that supports children's online safety and community self-regulation.
- 2) Take a positive approach** with age-appropriate, appealing content that emphasizes healthy relationships, emotional as well as physical wellbeing, and rights-based content that actively promotes gender equality and inclusion.
- 3) Build a collaborative environment** with multiple stakeholders, including online content creators, educators, young people, peer networks, software developers, network providers and partners from other disciplines, to leverage their experience and expertise to develop innovative, engaging solutions for digital sexuality education.
- 4) Push boundaries with innovative solutions,** user-centred iterative design, real-time feedback and impact assessment to capture young people's attention and creativity and to enable continuous improvement of content and user experience in this rapidly changing ecosystem.
- 5) Scale up digital interventions** with evidence of positive impact, from local to regional or even global.

Methodology

This review was primarily desk-based, drawing on information from published reports, peer-reviewed literature, websites, social media sites, mobile application stores and news media reports. It also draws on information from key individuals from NGOs and civil society from many countries in the East Asia and Pacific region. Further to this, a peer review process elicited input from technical specialists and academics in related fields.

There are several limitations to this report. First, whilst every effort was made to gain information from all countries, some digital media may have been missed, particularly those published in local languages. Limitations in translation may have also led to certain features of the resources

identified being overlooked. Second, there may be reach data or programme evaluations that were not available in the public domain but that would provide more information about the impact of these media. Third, it is not known to what extent young people in East Asia and the Pacific access sexuality education digital media from outside the region, nor what impact these media may have. Finally, whilst there are plans to consult with young people from the region on their use and ideas about digital sex education, this was not part of the initial review process for this report. Participatory research, with children and adolescents, will be an important component for future endeavours in this area.



UNICEF/UN014974/Estey

Sexual and Reproductive Health in East Asia and the Pacific

Over 60% of the world's 1.8 billion young people, aged 10-24 years, live in Asia and the Pacific, and a significant proportion of them are sexually active.(1–3) The initiation of sexual activity during adolescence is not uncommon, and to be expected, as sexuality among adolescents is a normal part of human development. However, many young people are inadequately prepared, having insufficient knowledge or life-skills, to incorporate safe and healthy sexual practices into their lives.(1) The negative consequences include early pregnancy, unsafe abortion, sexual violence and coercion, sexually transmitted infections (STIs) and HIV.(1,3–7)

Adolescent fertility rates remain above the global average in many East Asia and Pacific countries including Cambodia, Indonesia, Lao People's Democratic Republic (Lao PDR), Papua New Guinea and the Philippines.(8,9) Fertility rates are higher in settings where early marriage is prevalent, in rural compared to urban areas and among girls with less educational attainment and lower socio-economic status.(1) An unintended pregnancy, particularly outside of marriage, can have negative consequences for the girl including stigma, social isolation, school expulsion, forced marriage and, in some cases, violence and suicide.(1,6) Abortions, which are highly restricted or prohibited in at least a dozen countries in the region, can be unsafe and result in significant morbidity and mortality.(1,6) Child marriage, which can be a cause or a consequence of pregnancy, can also contribute to social isolation, increased risk of intimate partner violence and STIs.(10,11)

Many countries have high rates of sexual violence associated with increased incidence of unintended pregnancy and abortion, increased risk of STIs including HIV, as well as other health



In the Philippines, 1 in 10 girls aged 15-19 years are already mothers, and 24 babies are born to teenage mothers every hour.(9)



In Viet Nam, only 45% of girls aged 15-19 knew where to get condoms.(1)



In Lao PDR, one-third of secondary school students are sexually active, and 24% of rural women give birth to their first child before age 18.(1)



In China, a study of unmarried girls 15-19 years found 17% of sexually active adolescents had experienced a premarital pregnancy and 91% ended in abortion.(1)



In Thailand, 20% of adolescent girls who had sex before the age of 15, reported that their first sex was forced.(1)

Also in Thailand, 55% of MSM reporting a history of forced sex had their first occurrence during adolescence.(7)



30% of women in the Solomon Islands and Vanuatu report a violent sexual experience before the age of 15 years.(12)



In Indonesia, up to 80% of women, aged 15-24 years, and 56% of men could not name any STI symptoms.(1)



In the Pacific Islands, chlamydia prevalence for 15-19 year olds has been reported to be over 35% for females and 27% for males.(1)

issues.(1) Young people who report first sex before the age of 15 years frequently indicate their first sexual encounter was forced.(1) Intimate partner violence is not uncommon throughout the region, with rates being of particular concern in the Pacific Islands where women and girls experience some of the highest rates of intimate partner violence in the world.(1,12) Young key populations, such as young transgender people and young men who have sex with men (MSM), may be particularly vulnerable to coercion and violence as a result of stigma and discrimination.(1)

Knowledge of sexually transmitted infections is limited throughout the region, and despite most young people having heard of HIV, comprehensive knowledge of transmission and prevention is low.(1) For example, in Indonesia, Papua New Guinea and Timor-Leste, less than half of 15-24 year old females are reported to know that condoms can prevent HIV.(1) This lack of knowledge contributes to high rates of STIs among young people in many countries.

The evidence described indicates that a lack of knowledge and skills is contributing to suboptimal outcomes in sexual and reproductive health of many young people in East Asia and the Pacific. This is despite the implementation of comprehensive sexuality education in most countries in the region.



UNICEF/UN017601/Marcelino

Comprehensive Sexuality Education in East Asia and the Pacific

Comprehensive sexuality education remains the cornerstone for improving the sexual and reproductive health of young people.

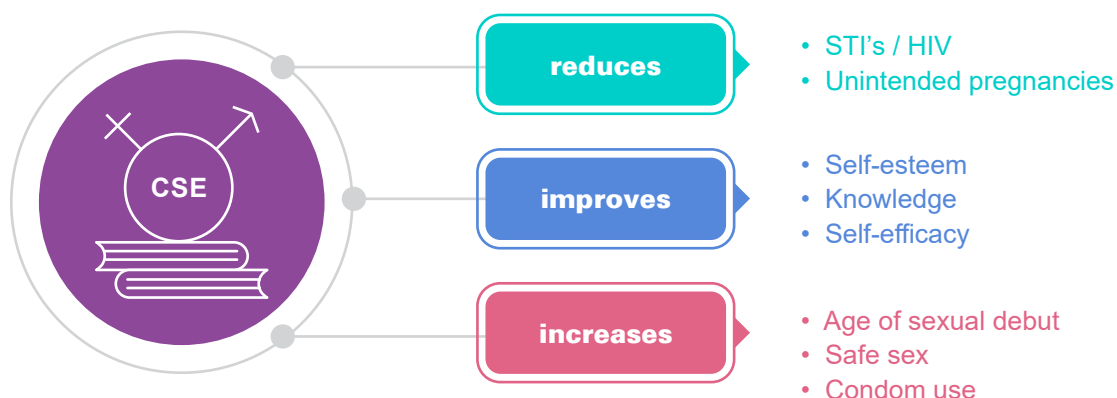
The objective is to ensure that young people are receiving high quality, life skills-based, sexuality education to gain the knowledge and skills to make safe, healthy and respectful choices about sexuality and relationships.(1,13–15) Comprehensive sexuality education is built upon a foundation of human rights, the rights of the child, and the empowerment of children and young people.(15) Effective sexuality education must start early in childhood, prior to sexual debut, and progress in an age-appropriate manner as the child develops, like any other subject in the curricula.(15)

Comprehensive sexuality education is recognised as a culturally relevant approach to teaching about sexuality and relationships by providing scientifically accurate, realistic, non-judgemental information.

UNESCO, 2015 (15)

There is evidence for positive impacts from comprehensive sexuality education including reductions in STIs, HIV prevalence and unintended pregnancies as well as increased safe sex behaviour, such as condom use and delayed sexual debut (see Figure 1).(10,15,16) In addition, comprehensive sexuality education has been found to improve knowledge, self-esteem and self-efficacy.(15) Comprehensive sexuality education programmes provide an opportunity to develop life skills and values important for adolescent development beyond sexual and reproductive health, including the development of positive gender norms and relationships. Replication studies show that comprehensive sexuality education programmes can be effectively transported from one country or culture to another, even when cultural or other contexts are dramatically different.(16)

FIGURE 1. POSITIVE IMPACTS OF COMPREHENSIVE SEXUALITY EDUCATION (CSE)



Despite great progress in comprehensive sexuality education programmes across East Asia and the Pacific, implementation still varies greatly.(1,17,18) Most countries implement comprehensive sexuality education (often called health education) at the secondary level in the formal education system; the exceptions being the Democratic People’s Republic of Korea (DPR Korea) and the Federated States of Micronesia, which lack national curricula.(1) In Tonga, comprehensive sexuality education is limited, whilst Kiribati and Vanuatu have programmes planned. At the primary level, implementation of comprehensive sexuality education is mixed. In East and Southeast Asia, only four countries, China, DPR Korea, Mongolia and the Philippines, lack comprehensive sexuality education at the primary level. However, in the Pacific, only Fiji and Papua New Guinea include comprehensive sexuality education in primary curricula. Few primary programmes start at the recommended age of five.(19,20) The content of the programmes is also reported to vary with the majority being focused on biology and health knowledge and only a minority addressing human rights, behaviour change, gender norms or discrimination.(1,17)



In Thailand, a review of comprehensive sexuality education found:

- Students were not developing the skills they needed to practice safe and healthy sex.
 - An emphasis on abstinence and the negative consequences of sex discouraged students from speaking about sexuality.
 - Instruction could be improved by the inclusion of activities to help develop critical thinking skills.
 - Other constraints included lack of prioritisation, planning, policies, teacher training and resources for comprehensive sexuality education.(18)
-

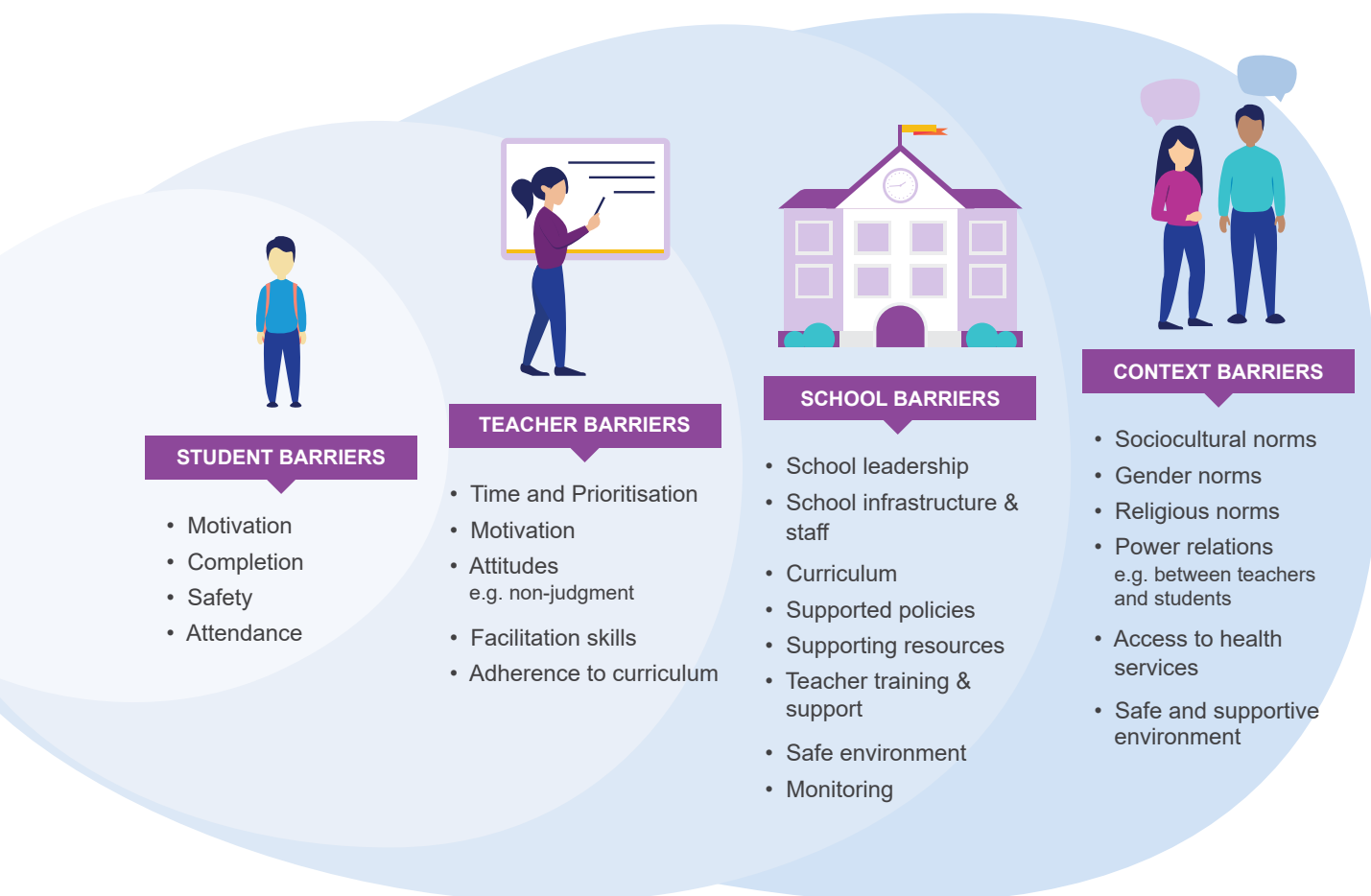
Including topics on human rights, behaviour change, gender norms and discrimination are important to a holistic approach to comprehensive sexuality education and provide a valuable opportunity to contribute to broader adolescent development and better health outcomes.(15,21) Content on gender and power inequalities in intimate relationships have, in particular, been identified as key characteristics for effective sexuality and HIV programmes.(21) This may include consideration of gender stereotypes, discrimination on the basis of sexual orientation or gender identity/expression and harmful practices, such as early marriage.

Many potential barriers may prevent the effective implementation of comprehensive sexuality education, including the cultural context as well as those at the school/organizational level, teacher and student (see Figure 2).(1,14,22) Lack of teacher training and support, resources, supervision and monitoring are reported to be key challenges to implementing comprehensive sexuality education in many countries.(1) In addition, programmes may not be compulsory but up to the discretion of schools or teachers who may be influenced by perceived or real opposition from parents, communities and religious leaders.(1)

Cultural and social norms shape a discomfort to openly talk about sex and sexuality. It is an area associated with moral values and judgments, as it addresses one of the most sensitive aspects of human experience – sexuality.(22) In many cultures, teaching about sexuality to young people before marriage is particularly sensitive, leading to educators’ reticence to incorporate comprehensive sexuality education into curricula and speak openly about these issues.(22)

Few comprehensive sexuality education programmes utilize digital technology to teach young people about relationships, sex and sexuality. One exception, The World Starts with Me digital secondary school curriculum, is reported to have been impacted by inconsistency in teacher implementation.(14) In addition, whilst there is excellent and comprehensive technical guidance available for the implementation of comprehensive sexuality education in schools, little direction could be identified for the development of online programmes.(16,19,20,23)

FIGURE 2. BARRIERS TO THE IMPLEMENTATION AND EFFECTIVENESS OF COMPREHENSIVE SEXUALITY EDUCATION



In this context, digital technology provides another entry-point for sexuality education. The internet and digital media can enable private, personalized and easily accessible answers to critical questions about sexuality and relationships that may not be otherwise forthcoming. These media also provide sex educators an avenue to reach young people directly -- via innovative technologies, websites, messaging apps and social media platforms -- anytime and anywhere. However, will these digital platforms offer the reach and the impact needed to make a significant difference to the sexual and reproductive health of young people in the region?

Digital Ecosystem in East Asia and the Pacific

In 2018, there were over 4 billion people connected to the internet globally, a third of whom were residents of East and Southeast Asia.(24) Cost does not appear to be a barrier to connectivity in the low and middle income countries of the region with several, namely Thailand, the Philippines, Indonesia and Malaysia, ranking among highest users of internet-powered devices and services in the world (see Figure 3). Fuelling this “frenzy of access” has been the increased convenience and availability of mobile networks and devices, especially smart phones. A second factor has been the draw of online content and social media apps that are shaping relationships and identities, particularly for younger users.

Throughout the region “more and more children are relying on digital tools, platforms and services to learn, engage, participate, play, innovate, work or socialise”

Third, 2014 (31)



Around the world, children are gaining increased access to mobile devices and going online at younger ages.(25) It has been estimated that, globally, a third of internet users are children.(26,27) In China, home to the highest number of internet users in the world, one in five users are aged 10-19 years.(28)

A 2012 study found the most common age children get their first mobile phone to be 12 years; in 2015, a similar comparison reported 10 years of age.(29,30) Most young people use digital media primarily for communication, connection and sharing, followed by information seeking.(31–33) However, the majority of child internet users report learning something new online at least every week.(34)

While in many high-income countries the vast majority of young people have their own devices for internet use, access in low and middle income countries can be more heterogeneous.(25) Data can be prohibitively expensive, as can the cost of devices. In these settings, sharing of data and devices is more common, and there is greater use of Wi-Fi rather than mobile data.(25) In the Philippines, a survey of children aged 9-17 years found most do not spend personal money on internet access but rather use Wi-Fi or internet connections at home.(35) In Viet Nam, young people without their own device report frequently utilising friends' phones or public internet cafés.

Despite the cost, smart phones are becoming increasingly prevalent. Most children who use a smart phone download apps. The most popular categories of apps are: 1) entertainment (games, videos, music), 2) communication (social networking and instant messaging), 3) education and learning (digital textbooks) and 4) information (e.g. news, search tools).(29) Nearly half watch films or videos on their mobile phone. Children's online experiences are shaped by offline



In Indonesia, a 2012 survey of children (n=1003) found:

67% owned a mobile phone;

60% of children with mobile phones accessed the internet;

53% of children used apps,
89% with a smart phone; and

63% of children who used the internet used social networking.

The most common age of first mobile ownership was 12 years.(30)



In the Philippines, a 2015 survey of children (n=592) found:

76% used a tablet;

67% used a mobile phone;

59% of those using a mobile phone used a smart phone;

85% of those using a mobile phone used the internet; and

79% of those who accessed the internet used social networking.

The most common age of first mobile phone ownership was 10 years old.(29)

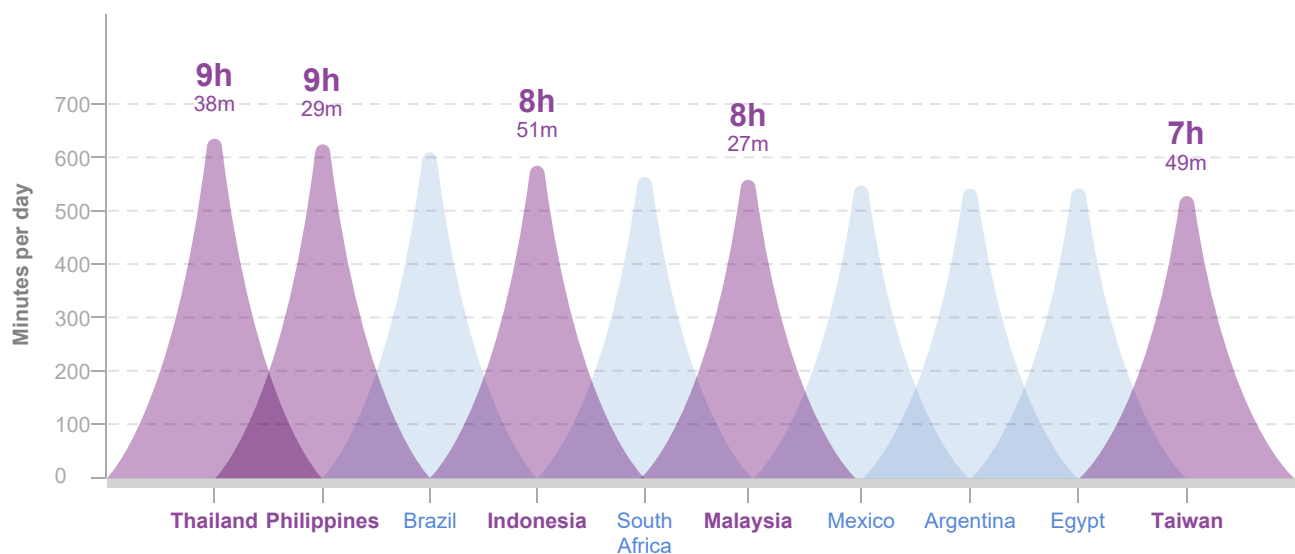
factors.(25) Their age, personality, gender, digital skills, family, peers, culture, ethnicity, nationality and socio-economic circumstances all influence what they do and view online. Girls, for example, tend to participate more in social networking whilst boys play more games.

Social media has shown particularly rapid growth in the Asia-Pacific region. Penetration in Eastern Asia (64%) and Southeast Asia (55%) exceeded the global average of 42%, with the highest rates reported in Malaysia (75%), Thailand (74%) and China (65%). In 2017, social media gained 224 million more active users in the Asia-Pacific region, 86.6 million in China alone.(24) Worldwide, Facebook remains the most popular social media platform across all age groups. Of the 10 countries with the greatest number of Facebook users, four are in Southeast Asia, namely Indonesia, the Philippines, Viet Nam and Thailand. Combined, they are home to over 300 million Facebook users. Top messaging applications in the region include WhatsApp, Facebook Messenger, WeChat and LINE. A significant number of social media users are children. There are over 45 million adolescent Facebook users, aged 13-17 years, in Southeast Asia alone, 23 million in Indonesia.(36) A survey in the Philippines reported 79% of children with mobile phones used social media.(29) Social networks are reported to be regularly used by young people to make new (online) friends and receive support.(25)

There is no doubt that, across the region, children and adolescents are becoming increasingly connected to the digital world and that they are using these media to find support and information. But what do they look for when they search online for sexual and reproductive health information? And what do they find?

FIGURE 3. FIVE OF THE 10 COUNTRIES WITH THE LONGEST INTERNET USAGE PER DAY ARE IN EAST AND SOUTHEAST ASIA (all users, minutes per day)(24)

N.B. Connectivity does not necessarily equate to active engagement, since mobile phones may be continuously connected but not always viewed.



What do young people look for in digital spaces?

There is a growing body of evidence that young people are regularly using the digital world as a key source of information about sex. One study reports that it is common for children to seek health information online on a weekly basis.(34) Another survey in the USA found that the majority (84%) of teens reported using the internet to access health information and that sexual activity was an important issue of concern.(33) A 2015 review found evidence that youth search the internet for information on sexual health more than any other health issue.(37) While peers are still an important source of information (or misinformation) about sex, it was suggested that the digital world is the most common source of sexual health information for youth.(37)

The internet offers a portable, convenient, personalised, private and anonymous source of information along with potential for entertainment value.(37,38) It is reported that online searching for information on sex is particularly important for those youth who are disadvantaged or marginalized, such as low-income, lesbian, gay, bisexual and transgender (LGBT) and homeless youth.(37,39,40) This may be due to lack of alternative information sources or the non-judgemental nature of the online environment. The digital world provides young people an opportunity to explore their sexuality away from prying eyes and potential discrimination or stigma. However, whether young people are accessing quality information online is not known.

Youth are reported to want information about sex that extends beyond warnings of risk of pregnancy and STIs. They are interested in information about emotions, relationships, communicating with partners and sexual pleasure.(37,38,42) However, there is limited data about how young people use the digital world to search for information on sexuality and relationships. While the source and credibility of information appears to be important to youth, little is known about what they find online and how it impacts them.(37) Younger users, in particular, report being less confident than their older peers in their ability to check if information online is factually correct.(34) While digital sexuality education initiatives have been launched all over the world, some gathering millions of users and hits, it is not known how young people find these sites or to what extent they also see pornography as a credible source of information.(37,38)



In the Philippines,

23% of 9-17-year-olds and

22% of 9-11-year-olds

search online for health information on a weekly basis.(29)

A significant proportion of young people are exposed to pornography online, whether by accident or by deliberately seeking it out.(37,38,43,44) For some, it is the primary source of information about sex.(38) Boys are reported to experience greater exposure at an earlier age and to see more violent or abusive images such as rape and child pornography.(37,38,43) Girls report more involuntary and problematic exposure.(37,38,43)

Pornography, like people, comes in all shapes and sizes; however, the sexual activity portrayed is often not safe, frequently violent and generally does not include condoms.(45,46) **There is strong evidence that exposure to pornography affects young people’s attitudes and beliefs regarding sex and may create unrealistic expectations.**(37,38,47) Adolescents who view pornography frequently are reported to experience a range of negative health and wellbeing outcomes; however, it is not possible to attribute causality.(37) It is difficult to know whether pornography could be an effective entry point for sexuality education sites, but it is a possibility that should be considered.(38)

A study of 16,554 adolescents and young adults, aged 15-24 years, in three Asian cities found:

- Many had learned about sex from the internet -- 52% in Hanoi, 56% in Shanghai and 83% in Taipei.
 - Viewing pornographic movies/ videos was common — reported by 72% of respondents in Hanoi, 66% in Shanghai and 86% in Taipei.
 - Males were more likely to watch pornography than females – 43% of males versus 7% of females in Hanoi, 57% vs. 22% in Shanghai and 94% vs. 77% in Taipei.(43)
-



UNICEF/UN014968/Estey

Young people like to interact with digital platforms which allow them to form relationships and develop identities using multiple modalities.(38,48) For young people, personal friendships are a source of information about sex, and social media provides a channel for this communication.(48) Those platforms that seamlessly integrate chat, messaging, contacts, games and photo / video sharing are particularly popular.(25,37,38) Affordability, privacy, entertainment and fast access to information contribute to the appeal of social media, messaging apps, photo / video apps and mobile-games. Interactive mobile-websites also hold demand, when they present straight forward information on relevant topics and include videos and/or animations.

When using social media young people may come across health-related information; however, fear of bullying and stigma may prevent peer-to-peer sharing in this environment.(38) Girls, in particular, often face harsh judgement online.(37,38) Censorship on some social networking sites, such as Facebook, also restricts content that may be more sexually graphic but useful from a public health perspective.(38) In some instances, teens may be reluctant to download apps with sexual health content for fear of them being discovered by parents or other adults with access to their electronic devices.

Despite the challenges, digital platforms represent attractive channels for young people to seek and receive information on sex and sexual health. Frequently asked questions on popular, anonymous sexuality education sites cover a range of issues including misconceptions and myths, body development, menstruation, relationships, sexual identities and access to services (see Figure 4 for some examples of questions asked on sites). The nature of these questions reinforces that young people feel comfortable asking important questions in an anonymous online environment and that there is value in providing evidence-based sexuality information through these channels.

FIGURE 4. WHAT DO YOUNG PEOPLE LOOK FOR ONLINE



Existing Digital Sexuality Education Platforms

Mass media has been used widely, by public health and social programmes, to increase knowledge and modify harmful social and health behaviours.(38) In the last decade, this has included the use of digital media to launch sexuality education initiatives. In contrast to traditional sexuality education, the digital environment offers anonymity, informality, portability and the ability to remotely interact with peers and experts.(38) These digital tools include websites, mobile applications (apps), games, social media and videos. Some provide general information about sexual and reproductive health whilst others offer more targeted knowledge or services such as tracking of menstrual cycles or locating health clinics. The reach of some of these platforms, with millions of users, is certainly impressive when compared to traditional, interpersonal, offline sexuality education, yet very little is known about their effectiveness and impact.

A. Worldwide

The freedom of information offered by the internet allows young people to access sites from almost anywhere in the world. There are a multitude of platforms online; those with the largest subscribers are generally in English language and often based in the United States of America (USA). Top-ranked digital sexuality education media come in all forms including websites, apps and YouTube video bloggers (vloggers). The information provided in most of these platforms is generally comprehensive with language, locations and sales obviously focused on western teens.

The most highly subscribed YouTube sex education vloggers tend to be female with subscriptions also being higher among young women. Worldwide, popular vloggers include American [Laci Green](#), with almost 1.5 million subscribers; [Hannah Witton](#) (United Kingdom) and sexologist [Dr. Lindsey Doe](#) (USA), with nearly half a million subscribers each; [Shan Boody](#) (USA, 350,000 subscribers); and Natalia Trybus's Polish channel [PinkCandy](#) (99,000 subscribers).(49) The videos generally take a positive and inclusive approach to sex, often tackling taboo topics such as masturbation. Some teachers have begun to utilise selected YouTube sexuality education clips as a starting point for discussions in the classroom.(49)

Popular mobile applications vary in their functionality. [Juicebox](#) connects users to certified sex and relationship experts while [It Matters](#) and [My Sex Doctor](#) offer young people quick access to sexual and reproductive health information and services.(50–58) Popular websites [Amaze](#), [Scarleteen](#) and [Sex.etc.](#) generally offer a variety of resources such as magazine-style and evidence-based content, clinic finders, communication tools, forums, polls, videos, blogs, games, condom sales and social media presence across multiple channels. Some sites, such as Amaze, offer side guidance for parents and educators whilst others, such as [Always Changing & Growing Up](#), are specifically designed for these adult groups.(59)

There are also adult websites and applications, focused on healthy sexual relationships such as the pleasure-oriented, instructional videos on [OMGYES](#), [Better in Bed](#) podcasts by Hong Kong based Sarasense, or the [SexPositive](#) website which aims to reduce STIs and sexual violence and increase healthy communication.(60,61) However, when searching online for information on sex, pornography is pervasive, easily accessible and often free. Some porn may include harmful content that is unsafe, violent or objectifies women. Other videos may not be immediately evident as pornography such as Hentai or Japanese anime (animated cartoon) porn which is suggested

by some to be the most watched pornography worldwide.(62,63) Not all genres are as innocent as the wide-eyed characters appear, and some Hentai include fetish sex with weapons, violence and rape, or child sex between an older man and young girl.(62,64) In some countries, Hentai faces the same censorship as child pornography.

Some producers of pornography appear to recognise the need for more factual information about sex – Pornhub has launched the [Pornhub Sexual Wellness Centre](#) in an attempt to address body issues, unrealistic expectations and unsafe behaviours that might follow from watching their media.(65)



UNICEF/UN014968/Estey

B. East Asia and the Pacific

Across the region, there are a wide range of digital media providing sexual and reproductive health information and guidance. Resources could be found in many countries, the exceptions being DPR Korea, Lao PDR, Papua New Guinea, the Pacific Islands, and Timor-Leste, where this review could not identify respective digital platforms or products. Thailand was identified as having the most digital sexuality education platforms and tools available. The content of these resources varies greatly from purely risk-oriented information to edutainment. In many instances, the supporting evidence-base, participation of young people, qualifications of curators and motives of the developers are unclear.

The sexuality education media vary greatly in functionality and modality and can be grouped broadly into four main categories: 1) mobile applications (apps); 2) websites and/or social media; 3) videos; and 4) multimedia suites, which include all previous modalities. Many tools have linkages to social media, whether Facebook, Twitter, Instagram, WeChat or YouTube. In some instances, the distinction between categories is blurred, as there is considerable, cross-platform promotion and interoperability. For example, an app may have a supporting Facebook page, or a website may include videos. The following discussion will, for the sake of brevity, group the offerings based on the dominant media in play.

B.1. Mobile apps

Of the mobile apps identified during this review, the majority have been developed in Thailand.

Content ranges from the predominantly information-based [Me sex](#) (Thailand), to the community forum [Juicy Peach](#) (Thailand), and games, such as [Judies](#) (Thailand).(66,67) Only one recently released app, [Unala](#) (Indonesia), was identified as directly facilitating access to sexual and reproductive health services for youth.(68) Availability of apps varies between the Google Play and iOS (Apple) platforms; however, it should be noted that Android phones (smart phones with Google developed, Android operation systems) dominate the mobile markets in lower and middle income countries.

Most of the Thai apps have been developed by Open Dream, including [Judies](#), [Love n lol](#), [Love Not Yet](#) and [Me sex](#).(69–72) Several have a rating of 17+ which theoretically should prevent access for younger adolescents although online age verification remains an ongoing challenge. To date, the most popular app, with 500,000 downloads, is [Judies](#), a game that teaches young people how to protect themselves during sex by providing safe sex tips and encouraging the use of condoms.(67,69)

The [Girl Effect](#) app, [Springster](#), connects marginalized girls around the world, providing education on key social issues including health, education and personal safety.(73) Featuring content designed by girls, for girls, the platform encourages the sharing of stories and connection through features such as commenting threads, polls and reactions, with the goal of cultivating self-belief and resilience. The site is available for free on mobile phones, with no data charges, through Facebook Free Basics. The platform is available in the Southeast Asia countries of Indonesia and the Philippines. In Myanmar, [Pyo Pyo May](#) targets girls and young women with information about their health, bodies, fitness, contraceptives, relationships and dating.(74)

Another type of app, focused on women's sexual and reproductive health is menstruation/ovulation trackers, which assist in planning for periods and pregnancy. There are several such apps available in the region including [Flo](#) (China, Japan, Republic of Korea, Thailand, Viet Nam, Philippines) and [Period Tracker – Period Calendar – Ovulation](#)

[Tracker](#) (China, Indonesia, Japan, Republic of Korea, Philippines).(75,76) Most do not have an education focus but are commercially driven, with data collection and advertising. In Indonesia, the app and website [Skata](#) provides pregnancy planning advice to married couples, with a menstrual calendar and information on contraceptives, and encourages parents to discuss reproductive health with their adolescents.(77)



JUDIES

This Thai developed game app encourages the use of condoms to save humans from the alien invaders, Judies.

UNALA

This Indonesian app provides articles on sexual and reproductive health and assists teenagers in making appointments to see a doctor or counsellor.



SPRINGSTER

Indonesia and the Philippines provide this free access website, to connect marginalized girls around the world, providing education on key social issues including health, education and personal safety.

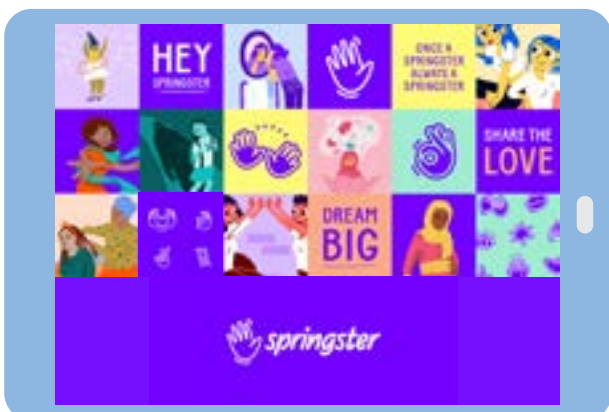























TABLE 1. APPLICATIONS OFFERING SEXUAL AND REPRODUCTIVE HEALTH INFORMATION AND GUIDANCE

APP	DEVELOPER - FUNDER	PLATFORM	COUNTRIES	CONTENT	AUDIENCE RATING
JUDIES 	Opendream		 Thailand	Game which educates young people about safe sex. Alien organisms, “Judies”, have invaded the world, targeting and terrifying humans. Only condoms have the power to combat the evil Judies	12+ Sexual innuendo
JUICY PEACH 	Taime Koeworakul		 Thailand	Forum where users anonymously share knowledge and experiences. Intimate questions about sex and relationships are answered by both the community and experts	12+ Parental guidance recommended
LOVE N LOL 	Opendream		 Thailand	Funny game about sex, that seeks to improve knowledge and dispel myths	12+ Infrequent/Mild Cartoon or Fantasy Violence, Sexual Content and Nudity
LOVE NOT YET 	Opendream		 Thailand	Game about contraception and safe sex	17+ Infrequent/Mild Cartoon or Fantasy Violence, Sexual Content and Nudity
ME SEX 	Opendream, Women’s Health Foundation, Change Fusion		 Thailand	Designed to help teenagers learn about sexual well-being, it provides information about contraceptives, STIs and advice and discussion on gender issues	17+ years
PYO PYO MAY 	Koe Koe Tech		 Myanmar	Targets girls and young women with information about their health, bodies, fitness, contraceptives, relationships and dating	3+
UNALA 	Kumar Hijau UNFPA		 Yogyakarta Indonesia	Connects youth, aged 15-24 years, to SRH services, including provision of vouchers	15-24 years

B.2. Websites and/or social media

Websites in the region providing sexuality education often have targeted audiences or restrictions in content. [The World Starts with Me](#) is not open access but rather a teacher-led, digital curriculum designed to be used in schools and with out-of-school youth. Grounded in a rights- and evidence-based approach, the programme combines sexuality education with digital literacy skills and creative expression.(78) It aims to help young people address sensitive issues around love, sexuality and sex positive relationships. The programme has been introduced in 11 countries in Africa and Asia, including Indonesia, Thailand and Viet Nam; and variability in results has been attributed to inconsistency in teacher implementation.(14)

The target audience for the Thai website [Love Care Station](#) is sexually active youth who live independently, particularly vulnerable populations such as men who have sex with men and those working in the entertainment sector or in escort services.(79) The website aims to decrease the incidence of STIs and HIV among young people by increasing the demand for and utilization of sexual and reproductive health services and offering information, online counselling and referral services. [Thaiconsent](#) (website and Facebook) provides a platform for discussion of sexual consent and other sex-related issues, with the goal of encouraging healthy, consensual intimate relationships.(80,81) Also in Thailand, the [Talk about SEX website](#) ([YouTube videos](#) and Facebook) is designed to support healthy, safe sex and positive sexual relationships, with content on a variety of topics including menstruation, rape and STIs.(82)

In Viet Nam, there are several websites providing information on sexuality education.(83–85) Some, such as [Mekhonghoanhao](#) are designed to support the parents of adolescents in discussing sex with their children whilst others provide general information and guidance on sexual and reproductive health issues. In addition, information

can be found on online libraries, and forums, such as [Adult World](#), a forum focused on reproductive health, gender and sexuality education for young and old.(86,87)

In China, Youth@Knows is an online question and answer (Q&A) channel about sexuality education targeting youth, while the Youth Health



UNICEF/UN0314401/Pudlowski

Network disseminates adolescent health information primarily for parents.(88–90) In Mongolia, the website [Namu](#) targets young adolescent girls with information about puberty, the female reproductive system and menstruation, including Q&A with medical professionals.(91) The [Aha Sexuality Education & Counseling Center for Youth](#) in the Republic of Korea provides private online sexuality counselling for adolescents and sexuality education resources.(92) While in Indonesia, the [Gue Tau](#) website targets adolescents and youth, aged 10-24 years, with comprehensive health and life skills content, including information on sexual and reproductive health.(93)

[Love Matters](#) worldwide has engaged people in more than 41.1 million sessions, in five languages across five regions.(48,94,95) In the East Asia region, the site, which encourages young people to talk about love, sexuality, gender rights and relationships, is available in [China](#). The site has generated the equivalent of 2,917,364 views every week, and the accompanying social media on Weibo (sina weibo and tencent weibo) and Wechat, generated close to 150 million page views.(96,97) The platform has a suggested age restriction of 18 years. There are also several commercially oriented 'sex education' platforms in China, which were noted to disseminate gender stereotypical or misleading information about sexuality. For example, one [site](#) targeting adolescents suggests that to prevent sexual assault women should avoid dressing seductively and not wear excessive make-up as these are the triggers for sexual abuse.(98) In Hong Kong, an interactive game, Making Smart Choices, playable on iPads, Facebook and the Web, has been found to be effective in providing sex and relationships education to adolescents.(99)

Examples of standalone social media aimed at improving sexual and reproductive health can be found in China on Weibo and WeChat. For example, Life Skills for Girls WeChat, provides sexuality education for adolescent girls.(100) Universities in China appear to have taken a leadership role in improving sexuality education for high school and tertiary students: university students provide peer education through more than 30 university Weibo and WeChat accounts, with support from the China Youth Network; the [ChangeMakers](#) WeChat is also run by student volunteers from Beijing Normal University (BNU); and Love and Life WeChat is moderated by a BNU university professor.(101–103)



LOVE CARE STATION

This Thai website aims to decrease the incidence of STIs, and HIV among young people by increasing the demand for and utilisation of SRH services and offering information, online counselling and referral services.



LOVE MATTERS



Available worldwide in five languages, including Mandarin, this website engages young people to talk about love, sexuality, gender rights and relationships, but has a suggested age restriction of 18 years.

TABLE 2. EXAMPLES OF WEBSITES AND/OR SOCIAL MEDIA OFFERING SEXUAL AND REPRODUCTIVE HEALTH INFORMATION AND GUIDANCE



INITIATIVE	HOST/ FUNDER	COUNTRIES	CONTENT	SOCIAL MEDIA	AUDIENCE	
THE WORLD STARTS WITH ME						
	Rutgers	Indonesia Thailand Vietnam	Sexual & reproductive health	NA	Teacher-directed curriculum for in- and out-of-school youth	
LOVE MATTERS						
	RNW Media	China (Mandarin)	<ul style="list-style-type: none"> Sex Love & relationships Communication Marriage Bodies Gay & lesbian Virginity Making love 	<ul style="list-style-type: none"> Birth control Pregnancy STDs Sexual harassment Sex and the internet Safe sex Let's Talk anonymous forum 		Over 18 years
LOVE CARE STATION						
	Path 2 Health UNICEF	Thailand	<ul style="list-style-type: none"> STIs and HIV Contraception Cervical cancer screening 	<ul style="list-style-type: none"> Live Chat Online counselling service & referral to clinic 		Independent sexually active youth, particularly key populations such as MSM
SPRINGSTER						
	Girl Effect	Indonesia Thailand Philippines	<ul style="list-style-type: none"> Content created by girls for girls Reproductive health information 	<ul style="list-style-type: none"> Social connection with girls around the world Personal development 		Marginalized and vulnerable girls
NAMUU						
	Ministry of Education, Culture Science & Sports, WaSH Action of Mongolia, UNICEF	Mongolia	<ul style="list-style-type: none"> Puberty Menstruation 	<ul style="list-style-type: none"> Female reproductive system 		Adolescent girls

INITIATIVE	HOST/ FUNDER	COUNTRIES	CONTENT	SOCIAL MEDIA	AUDIENCE
------------	-----------------	-----------	---------	-----------------	----------

AHA SEXUALITY EDUCATION & COUNSELLING CENTER FOR YOUTH

	Seoul City YMCA	 Republic of Korea	<ul style="list-style-type: none"> Sexuality education resources Private online counselling 		Adolescents
---	--------------------	---	---	---	-------------



GUE TAU

	Gue Tau	 Indonesia	<ul style="list-style-type: none"> Health and life skills information Sexual and reproductive health HIV and AIDS 	NA	10-24 years
---	---------	--	--	----	-------------






TALK ABOUT SEX

	Thai Health Promotion Foundation, Women & Health Advocacy Foundation, Change Fusion, Opendream	 Thailand	<ul style="list-style-type: none"> Safe sex and positive sexual relationships Menstruation Rape STIs 	 	
--	---	--	--	--	--



MEKHONHOANHAO

		 Vietnam	<ul style="list-style-type: none"> Supports parents wanting to talk about sexuality with their adolescent children 	NA	Parents
---	--	--	---	----	---------

THAICONSENT

	Not stated	 Thailand	<ul style="list-style-type: none"> Consent and other sex related issues 	  	Not specified
---	------------	---	--	---	---------------

THE GIDI NGUOI LON

		 Vietnam	<ul style="list-style-type: none"> Adult forum focused on reproductive health, gender and sexuality education for children and adults. 	NA	Adults
---	--	--	---	----	--------

B.3. Videos

Videos with educational content on sexual and reproductive health are almost all hosted on YouTube channels. Most are short dramatic films, animations or video blogs. Several vloggers were identified including [Hayden Royalty Channel](#) (Republic of Korea), who vlogs about sexuality and relationships with a focus on content for sexually and gender diverse young people.(104) In Cambodia, Catherine Harry delivers the candid [A Dose of Cath](#) on her YouTube Channel.(105–107) Her popular blogs and vlogs covering taboo issues related to sex, reproductive health, equality and women, cover a range of topics from masturbation and menstruation to contraception and abortion.

Also in Cambodia, the [Love9](#) YouTube channel addresses youth concerns on sexual and reproductive health, relationships, safe sex and STIs, using a combination of drama, comedy and celebrity talk.(108–110) Designed by youth, the programme reached more than half of the country's young people (1.7 million) in a single year. In Malaysia, Sex Educator June Low has a Sex Ed Webshow, which can be viewed on

[Youtube](#) or her website [Good.Sex.Ed.](#)(111,112) June's evidence-based programmes observe the UNESCO International Technical Guidance on Sexuality Education, and she also provides in-person sessions in schools.

In Thailand, the [toolmorrow](#) channel takes a social experiment format to explore issues faced by Thai teens, including those related to sex.(113,114) The goal is to inspire and empower youth, reduce risk behaviours and improve communication. Also in Thailand, the LINE Webtoon channel hosts [Teen Mom](#), an animated cartoon series which aims to help reduce adolescent pregnancies and HIV/STIs through promoting safe sex and access to youth friendly services and advice.(115) The cartoon portrays the lives of teenage characters as they encounter new emotions and sexual experiences.

The media startup Woori, in the Republic of Korea, has been developing informative and entertaining YouTube videos to deliver sexuality education for young people.(116) The videos use imaginative props such as [pink balloon clitorises](#)



A DOSE OF CATH

Cambodian feminist vlogger Catherine Harry delivers candid videos about a range of sexual and reproductive health topics including contraception, menstruation, masturbation and abortion.



TEEN MOM

Teenage Mom cartoons on the Thai application LINE Webtoon aim to reduce rates of adolescent pregnancy, STIs and HIV and help young people access SRH advice and services.



VIDEOS BY WOORI

In the Republic of Korea, these videos for young people use imaginative props to deliver sexuality education and destigmatize sex and sensitive issues such as masturbation.

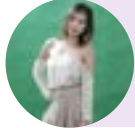
















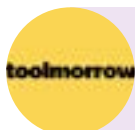














UNICEF/UN067578/Gomes

and [popcorn-ejaculating bananas](#) to destigmatize sex and sensitive issues such as masturbation and porn. They also use sit-down interviews to better understand young people's opinions on key issues such as sexual fantasies and sex on the first date. Also in Korea, the [ArumAlum](#) YouTube channel provides sexuality education for preschool children through animated cartoons, while an associated [website](#) provides support with songs, quizzes and puzzles for individuals and institutions.(117,118) The Korea Educational Broadcasting System provides educational YouTube videos on sexuality for children and adolescents, including content about sensitive issues such as menstruation.(119,120) The videos are hosted by [Gu Sung Ae](#), a nurse, social activist and sex education instructor who is reported to have heralded a significant shift in the way Koreans view and discuss sex. Supporting resources include podcasts and a website.

Videos not available on YouTube were identified in China and Myanmar. The Shan Women's Action Network (SWAN), in Myanmar, has developed a film and radio broadcast which highlights the importance of family planning and sexual health.(121) Available on their Facebook page, the video emphasizes that young women should finish secondary school and that young men must take responsibility for consent and unplanned pregnancies. In China, three short videos of hand-drawn cartoon figures went viral a few years ago.(122,123) Likely developed for parents, the videos illustrated 'where babies come from', the differences between boys and girls and how to prevent child molestation. Also in China, the marketers of the contraceptive Yasmin have targeted university students with two candid sex education videos.(124–126) The videos were distributed through a timetable app, reaching over 18 million students across 3,000 universities. To sustain interest, Yasmin also created a series of infographics about contraception for social media circulation.

TABLE 3. EXAMPLES OF VIDEOS OFFERING SEXUAL AND REPRODUCTIVE HEALTH INFORMATION AND GUIDANCE

INITIATIVE	HOST/FUNDER	COUNTRIES	CONTENT	SOCIAL MEDIA
A DOSE OF CATH				
	Independent	 Cambodia	<ul style="list-style-type: none"> • Sex and reproductive health • Gender equality and women • Includes taboo topics such as menstruation and abortion 	   
HAYDEN ROYALTY				
	Independent	 Republic of Korea	<ul style="list-style-type: none"> • Sexuality and relationships • Focus on LGBTQIA young people 	
JUNE LOW SEX ED WEBSHOW				
	Independent	 Malaysia	<ul style="list-style-type: none"> • Evidence-based and age-appropriate sex education videos for children and adolescents. 	 
TEEN MOM				
	UNICEF LINE Webtoon	 Thailand	<ul style="list-style-type: none"> • Animated cartoon series promotes safe sex and access to youth friendly services 	 
TOOLMORROW				
	Not stated	 Thailand	<ul style="list-style-type: none"> • Social experiment videos about issues faced by Thai teens, including those related to sex 	 
WOORI				
	Woori	 Republic of Korea	<ul style="list-style-type: none"> • Masturbation • Porn • Hymens 	
ARUMALUM				
	Goyangbb	 Republic of Korea	<ul style="list-style-type: none"> • Cartoon videos on health education for preschoolers • Physical differences between girls and boys • Names and hygiene for sexual body parts • Respect for others and keeping our bodies safe 	
GU SEUNG AE				
	Korea Educational Broadcasting System	 Republic of Korea	<ul style="list-style-type: none"> • Lecture series for parents of elementary students, regarding sexuality education • Conception • Masturbation • Menstruation 	

B.4. Multimedia Suites

For the purposes of this review, multimedia suites were defined as those which include three or more of the following media: apps, videos, website or mobile text services. Social media were not included as they are prolific and in many instances serve a more supporting role to promote the primary tools. One platform with a wide range of modalities, including a simple phone service, is Youth Chhlat (called Learning about Living in other countries).(127–129) [Youth Chhlat](#) delivers its sexual and reproductive health, gender equality, youth empowerment and life skills programme via website, android app, YouTube info-cartoons and mobile podcasts as well as Q&A services through mobile phone text, Facebook Messenger and email. Q&A services are staffed by trained counsellors and provide informative, non-judgmental responses to anonymous questions about sexual and reproductive health within 24 hours. The mobile podcasts consist of short audio episodes that can be delivered via recorded call to the subscriber's phone or accessed through voice-responsive, call-in service. In its first year, the programme reached almost 10,000 Cambodians, in- and out-of-school, and saw nearly 20,000 questions submitted.

[Sobat ASK](#) in Indonesia, provides a website, app and social media presence, including Facebook, YouTube and Instagram.(130,131) The platform seeks to improve adolescent sexual and reproductive health by increasing access to a broad spectrum of comprehensive, reliable and non-judgmental reproductive health information, and by creating a supportive and friendly environment for teens. Youth who visit the website can also have an online consultation or simply listen to consultation recordings of other youth whose identities are confidential. Sobat ASK Learning Space provides a structured online sexual and reproductive health study course, while the DAKU! programme is provided for educators. The reach of the platform to date has been somewhat limited, with less than 1000 app downloads and 100-500 video views.



YOUTH CHHLAT

Youth Chhlat is a Cambodian multi-media platform for sexuality education that includes a website, android app, YouTube info-cartoons, mobile podcasts, and question-answer services accessible from mobile phone SMS, Facebook Messenger and email.



SOBAT ASK

An Indonesian multimedia SRH platform with a website, an app, YouTube videos and presence on other social media such as Facebook and Instagram.

In the Philippines, [U4U](#) (You for You) aims to improve youth access to sexual and reproductive health information and services through its website; social media, including [YouTube videos](#), [Google Play app](#); and interactive voice response system.(132–134) The latter provides automated information in response to mobile phone text messages. The programme targets adolescents, aged 10-19 years, with a communication campaign focused on delaying sexual debut and reducing teenage pregnancy and STI prevalence. U4U takes an ‘ABC’ approach to sex (abstain, be faithful, use condoms) whilst also providing information about puberty, self-image, relationships, gender-based violence, youth advocacy and common misconceptions about sexuality. The website offers surveys, competitions, tests and games; while on YouTube, interactive [U4U High School](#) videos enable young people to engage with the stories of three teenagers, make decisions on their behalf and follow the outcomes. The online tools are promoted in schools by student leaders and through the U4U Teen Trail caravan using interactive exhibits and workshops, games, songs and dance.

Also in the Philippines, [LoveYourself](#) offers a website, video series and app promoting safe sex. The smartphone app, [SafeSpacesPH](#), and website link users to locations with condom dispensers.(135,136) The app, inspired by the mobile game Pokemon Go, aims to address low condom use by overcoming barriers of embarrassment, cost, and lack of knowledge of condom retail points and by providing free condoms in dispensers at local establishments, such as coffee shops, restaurants and bars. The YouTube videos provide self-care education with a focus on timely HIV testing and treatment, safe sex, and the correct and consistent use of condoms.(137)



U4U

In the Philippines, U4U provides youth access to sexual and reproductive health information and services through online and mobile platforms, including a website, social media, YouTube videos, an app, and an interactive voice response system.

LOVE YOURSELF

Offers a website, video series and condom locator app, particularly targeting men who have sex with men.



B.5. Digital ecosystem in summary

Currently there are many digital solutions for sexuality education available in the region, developed by a range of organisations, with varied objectives, content and target audiences. Several media, such as Me Sex (Thailand) and Love Matters (China), are designed for or restricted to youth over the age of 17 years, excluding younger and potentially more at-risk adolescents. Some specifically target parents and teachers needing support to provide adolescent sexuality education. While many media target young people in general, a few, such as Namuu and Pyo Pyo May, are designed for girls. Certain resources have been developed specifically for sexually or gender diverse young people or key populations at risk of HIV, such as MSM. These likely serve as important sources of support in cultures where discrimination and stigma persist. Indeed, sexual and gender diversity appear better represented online than in mainstream media where gender stereotypes and norms frequently continue to be perpetuated.

In many instances, it is unclear what information sources are used to inform or guide young people, nor the qualifications or training of the advisers. Some media, such as Namuu (Mongolia) and Youth Chhlat (Cambodia) utilize health professionals or trained counsellors for Q&A, whilst others such as Me Sex or Unala are developed by organizations with expertise in sexual and reproductive health. However, for many resources, the credentials of those involved and their motivations are not obvious. This is of concern for young users who report a lack of confidence in their ability to check whether information they find online is factual.⁽³⁴⁾ Media with commercial objectives, in particular, may not have a focus on rights-based, quality sexuality education. In addition, the implications of commercial data collection are not always well understood by young people, and this poses a potential risk to their rights.⁽¹³⁸⁾ There are currently few protections in the region to prevent the profiling and targeting of children by commerce and marketing.



UNICEF/UN0140090/Humphries

In most cases, it is also not evident whether, or to what extent, young people were engaged in the development of the sexuality education media. Of the resources reviewed, only Springster and Love9 were identified as having content designed by their target audience. While some developers and vloggers are likely to be youth (15-24 years old), it is not clear which other developers consulted with young people during the design process or where input was sought from younger adolescents. It is likely that a programme which engages young people in its design, development and implementation will have more appeal to that demographic. New and innovative solutions are also more likely to appeal to youth, as are those which address the positive potential of sex, rather than just risk.

It was beyond the scope of this review to critically evaluate the content of these media, but it is apparent that a minority take a sex-positive approach to sexuality education - many are risk-based, and a few are abstinence oriented. Sexuality education programmes that teach only abstinence have been found to not be effective.(23) Young people are reported to want more than risks and abstinence as the sole messages from sexuality education.(41) They want to learn how to be safe. There is, at present, limited data by which to compare the appeal of the content and modalities for young people. However, integrated, interactive solutions with multiple media that take a positive approach and include entertaining content are more likely to be popular. Videos, games, social media and chat, are particularly favored by younger users, and the availability of multiple modalities has potential to increase reach.(25,37,38) For example, the inclusion of text message services allows access by both smart and simple phones or when data access is limited. Also, social networking sites alone do not offer a solution, as they raise privacy concerns among young people who fear bullying and shaming by others. Entertaining or provocative content, that challenges taboos, may also be important to success.

Overall, despite the plethora of educational sexuality media available in the region, few platforms appear to have sufficient depth and breadth of comprehensive, evidence-based, gender-responsive content. There is also insufficient information to fully assess the appeal or potential reach of these resources among tech savvy teenagers. Engagement of young people is necessary to understand which tools for sexuality education can truly go viral and how.



UNICEF/UN040304/Thuentap

What is the impact of digital sexuality education platforms?

Many digital solutions for sexuality education track user data to measure reach and engagement; however, there is scarce information available on impact, such as changes in users' sexual and reproductive health outcomes. From the limited data currently available, it does appear that, under the right circumstances, digital sexuality education can positively improve user attitudes and knowledge, particularly about pregnancy and HIV/STI prevention; reduce sexual risk behaviour; and increase condom and contraceptive use.

A 2012 systematic review of the impact of 10 digital media initiatives on adolescent sexual health found only two delayed initiation of sex, seven improved psychosocial outcomes such as condom self-efficacy and abstinence attitudes, and six increased HIV/STI and pregnancy knowledge.(139) Limitations of this review include the small sample sizes, short follow-up periods and unpredicted negative outcomes of several of the studies considered. The authors recommend more controlled studies with longer follow up and measurement of behavioural outcomes to determine the effectiveness of new digital media in changing adolescent behaviour. Another review of the impact of health education via social media or text messaging on adolescent sexual risk behaviour found these interventions increased knowledge on STI prevention and affected STI testing and sexual risk behaviors.(140) The authors note that many of the studies examined in this review had limitations, including reliance on self-reported data, small sample sizes, poor retention, low generalizability and issues with analysis, and that more research is needed to better understand the impacts of digital media. A recent study of social media use and sexual risk reduction among

ethnic minority youth in the USA found youth exposed to sexual health messages on social media were more than twice as likely to have used contraception or a condom at last intercourse.(141)

Programme evaluations provide another source of data regarding the impact of digital media. Initiatives embedded in the formal education system are more likely to have such assessments available in the public domain. The World Starts with Me was evaluated using a quasi-experimental design in four countries and found to be effective in improving sexual and reproductive health knowledge, attitudes and behaviour; however, results varied significantly across countries.(14) Inconsistency in teacher implementation was suggested to be a contributor to variability. An evaluation of an interactive sex education game in Hong Kong, with more than 1000 grade 7-9 students, found that playing the game improved sex knowledge and that students found it fun and interesting to play.(99) Similarly, a survey at the end of the Love9 TV series found 77% of viewers (ages not specified) considered the programme to be educational, 49% learned something new from watching it, and 92% indicated it made a difference to their understanding that condoms can prevent STIs, including HIV.(142)

An evaluation of the Youth Chhlat programme in Cambodia found increases in knowledge of HIV and pregnancy prevention, with greater improvements for girls than boys.(143–145) A greater number of students reported feeling 'comfortable' speaking to adults about SRH; and whilst improvements in gender equitable attitudes were noted, negative attitudes still persisted.(143–145) A school-based study in China also found that providing sexuality education

through the internet increased students' sexual and reproductive health knowledge and changed their attitudes towards sex-related issues.(146)

However, children predominantly access the internet at home, rather than school.(34) Indeed, key advantages of most digital sexuality education platforms are that they may be reached independently, without adult intervention and the restrictions of socio-cultural norms.(38,147) The very nature of this self-directed learning means less may be known about its impact. The majority of children report learning new information by searching online; however, as the State of the World's Children report by UNICEF suggests, access to digital tools does not necessarily guarantee enhanced learning.(25)

It would appear, from the data available, that sexual and reproductive health-related digital media provide another communication channel to reach young people in an environment where they feel comfortable and safe. These interventions need not be considered a replacement for the traditional teacher-led approach, but rather a complement to comprehensive sexuality education, which will reinforce and enrich knowledge and attitudes. These platforms also have the potential to tailor and target interventions at specific at-risk

populations, provide 'personalized' responses and the ability to interact with peers who are not local or part of in-person networks.(38,147) For some young people, such as out-of-school or LGBTI young people who may not be adequately reached with mainstream, curriculum-based approaches, it may be the only information source available. Certainly, digital media can allow children and adolescents to seek out information how and when they want it, with the potential to do so at scale.

There is a need for more research on the impact of digital sexuality education initiatives to better understand how they affect sexual and reproductive knowledge, attitudes and behaviours and what increases their appeal and usefulness for young people. There is also a need for objective research on the impact of sexually explicit materials on the behaviour of young people to explore their positive and negative impacts. There is an argument that if violent, unsafe, non-consensual pornography increases sexual risk behaviour, then a 'harm reduction' approach which includes viewing of safe, consensual, gender-equitable sexual activity can also promote healthy sexual relationships and safe sex choices, as well as pleasure.(148)



UNICEF/UN014968/Estey

Child Protection Issues and Digital Media

The rapid spread of connectivity brings with it a range of new potential risks and harms for children. In the developing world, these risks may be exacerbated by limitations in adult guidance and a lack of protective legislative and regulatory mechanisms.(149,150) The management and response to online risk and safety is key to children benefiting from the digital world. However, research suggests that a rigid focus on risk and safety may negatively impact the potential benefits for children and their rights to information and participation.(26,37,150) Exposure to risk does not necessarily equate to harm and may have positive benefits in the development of resilience.

A significant proportion of children do report being upset or bothered by incidents online, whether being treated in a hurtful way by peers, viewing sexual images or sexual solicitation.(34) These online risks can be considered in three categories: content, contact and conduct risks (see Figure 5).(25)

Content risks represent exposure to inappropriate content such as sexual, pornographic or violent images, some forms of advertising, discriminatory or hate speech and sites advocating dangerous behaviours, e.g., suicide.(25) Estimates of adolescent exposure to pornography vary between countries but are generally high – up to 50-90% of teenagers report having seen explicit materials online.(43,47,151–154) Research from Thailand found that many children accessing the internet in internet cafes were surrounded by adults viewing pornographic images, and that exposure has become a normalized aspect of their lives.(155)

Contact risks include inappropriate contact, for example, an adult contacting a child to solicit sex or individuals encouraging unhealthy or dangerous behaviours such as sexual risk-taking.(25,156) In the Philippines, a survey found most children, aged 9-17 years, had been exposed to cybersex, sexual messages or grooming when online.(35) While in Malaysia, NGO [R.AGE](#) suggests that 80% of reported rape cases in a two-year period involved sexual predators who initiated contact online.(157,158) Most of those targeted were under the age of 18 years.

Conduct risks describe scenarios where children contribute to risky content or contact.(25) Chat rooms and social network sites can open the door to violence and bullying, as anonymous users, including young people, engage in aggressive or abusive communication.(35,38,48) There is also more opportunity for a young person's privacy, identity and reputation to be threatened online. Increasingly, porn sites are moving towards uploads of 'homemade' or self-produced porn which may include 'revenge porn', uploaded without consent. Sexual messaging or sexting – the practice of sending sexually suggestive or explicit images via digital technology – may be a form of online flirtation or a tool for bullying, shaming or extortion.

Children's perceptions of these risks differ greatly from adults.(25) Young people are often early adopters of technology, and some may be more familiar with the digital world than many adults.(150) They are reported to see stranger contact as an opportunity to make new friends and often believe greater threats to privacy come from other sources, such as governments or even parents.(25)

Overall, it is reported that only a minority of adolescents are negatively affected by cyberbullying, contact with strangers, sexual messaging and pornography -- less than one in five.(149) Few report online sexual solicitations to be distressing, and only one in nine, 9-16-year-olds who reported meeting an online contact offline, were bothered in some way by the experience.(149) Some young people do not find unwanted exposure to

pornography disturbing; others may even search it out.(25) It should be noted that self-reported harm is not always a reliable measure and children cannot know the harmful effects of exposure to sexual risks in the long term.(149) However, claims that children are increasingly exposed to harmful sexualized messages online ignores the critical media literacy of young people.(37,149,159)

FIGURE 5. • RISKS ASSOCIATED WITH DIGITAL MEDIA DESIGN (adapted from 25)

	CONTENT	CONTACT	CONDUCT
VIOLENCE AGRESSION	<ul style="list-style-type: none"> self-abuse/harm suicidal content discrimination exposure to violence 	<ul style="list-style-type: none"> radicalisation ideological persuasion hate speech 	<ul style="list-style-type: none"> cyberbullying/harassment hostile/violent peer activity
SEXUAL ABUSE	<ul style="list-style-type: none"> unwanted or harmful exposure to pornography 	<ul style="list-style-type: none"> sexual harassment sexual solicitation sexual grooming 	<ul style="list-style-type: none"> child sexual abuse production/consumption of child abuse images sexting
COMMERCIAL EXPLOITATION	<ul style="list-style-type: none"> embedded marketing online gambling 	<ul style="list-style-type: none"> violation of personal data hacking fraud/theft sexual extortion 	<ul style="list-style-type: none"> live stream child sex abuse child sexual exploitation child trafficking

Some children are more at risk than others, and those who are more vulnerable offline also appear to be more vulnerable online

(see Figure 6).(25) Offline risk takers are more likely to take greater online risks, perhaps as a result of sensation-seeking combined with a relative lack in impulse control.(149) Several studies have found that children who are bullied, neglected or abused offline are also more likely to be cyber-bullied.(25,37,149) Inadequate parental supervision may be a contributor to these adverse experiences online. Sexual orientation and/or gender identity may also increase a young person's vulnerability -- LGBT young people experience more online harassment and/or solicitation.(37) In contrast, digital literacy skills are a strong predictor of better online resilience and safer online behaviours.(25,34) Older children are more likely to have these skills than their younger peers and even, in some instances, parents.(34) Education has a role not only in developing this digital literacy but also in supporting the norms and values that build online resilience and challenge bullying.

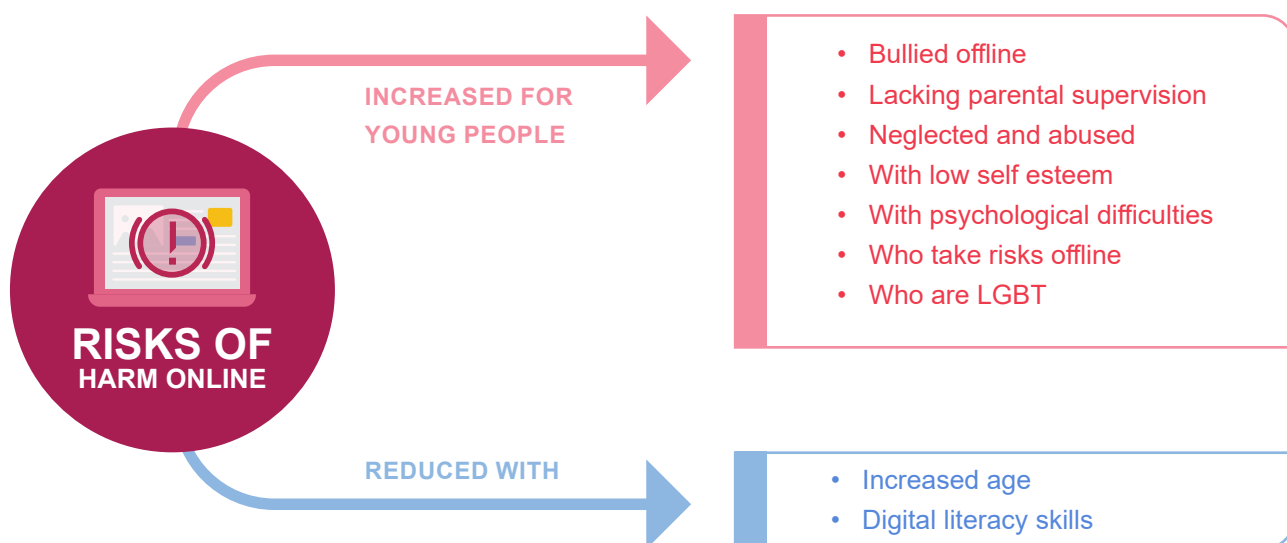
While there is risk of harm online, key opinion leaders appear to support the use of internet and social networking sites as opportunities for children to learn, communicate and express themselves.(25,34,37) It is recommended that policies and practice are needed to support

children's rights to information, education, protection, privacy and participation, including online.(25,26,31,34,37) Digital tools may be integrated into sites to help protect children from online sexual predators. For example, in Malaysia [R.AGE](#) is currently testing a Chatbot for Facebook Messenger which will provide young people with easy access to guidance with the aim of reducing contact risks, such as grooming.(157)

There is a need to develop a comprehensive digital sexuality education framework that guides initiatives and addresses child protection issues.

Strategies should promote gender equality as well as empowered and safe online experiences.(31,34) Content needs to be positive, high quality, age-appropriate and locally adapted.(34) Collaborations of multiple stakeholders, disciplines and industries will be more likely to leverage the greater technical expertise needed to develop innovative solutions. Many children are more discerning than most adults and understand the online world a lot better. They also need to be engaged in policy and programme design.(31) Ultimately, the needs of children and young people must be kept at the centre of media design for sexuality education.

FIGURE 6. FACTORS CONTRIBUTING TO A YOUNG PERSON'S RISK OF HARM ONLINE



Conclusions and Recommendations

This review has found digital sexuality education to be a diverse ecosystem which offers an opportunity to have a positive impact on sexual and reproductive health knowledge, attitudes and behaviours of young people. Outcomes appear stronger for psychosocial and knowledge results; however, to date, the research on the impact of digital sexuality education is very limited. There is a need for continued focus on curriculum-based, comprehensive sexuality education in both the formal education sector and out-of-school programmes; however, age-appropriate, engaging and evidence-based digital media solutions should be explored to complement in-person teaching. Digital solutions provide an opportunity for delivery of relevant sexuality education content, without being constrained by personal discomfort and socio-cultural restrictions. They can also offer scope for targeted interventions for specific populations and the potential to reach adolescent populations at scale, anytime, anywhere. In addition, digital media may serve as strategic vehicles to promote gender equality and child rights, including the right to express one's views and to participate, the right to non-discrimination, the right to information and the right to protection.

Recommendations for design and implementation of digital sexuality education initiatives include:

I. Build a solid foundation that promotes safety and quality

- i. **Develop technical guidance and a framework for sexuality education in digital media.** Young people actively seek information online about love, relationships and pleasure; however, there is currently no system in place to assist digital sexuality educators and creators in developing quality solutions with evidence-based, comprehensive content and for users to identify trustworthy platforms. International technical guidance exists for in-person delivery of sexuality education in formal education and out-of-school programmes ([International Technical Guidance on Sexuality Education](#) (ITGSE), UNESCO 2018); however, a quality assurance mechanism for digital sexuality education has yet to be developed. Such guidance must consider the interests and rights of young people in their digital and social media spaces; the rapidly evolving digital landscape and digital regulatory frameworks; customization for cultural specificity; and the opportunity for industry self-regulation to promote ethical, safe and high quality content.
- ii. **Build skills and develop digital literacy at a young age.** Ensuring that children benefit from the opportunities of digital media and are safe online will require the promotion of digital literacy, online resilience and cyber-savviness. Many adolescents are at the cutting edge of digital and social media environments, developing their own strategies to navigate and self-regulate the internet terrain, and there is much to learn from them. However, adolescents, particularly younger children, also need to be supported to develop skills that allow them to critically evaluate what they view and/or create online. They need to be empowered to seize the opportunities offered by the digital world whilst developing the capacity to manage potential risks, such as safeguarding their privacy and identity online. Young people also need to know how, where and when to seek help.

II. Take a positive approach

- i. **Balance the positive and the risks.** Sexuality education needs to promote the positive and not just focus on risk. If digital solutions concentrate only on the risk of pregnancy, STIs and HIV, they will not meet the needs of young people. Guidance should support language and content that communicate respect, consent and boundaries, not shame or judgement. Digital sexuality education should emphasize the importance of forming healthy relationships and emotional, as well as physical, wellbeing in a sex-positive manner.
- ii. **Promote gender equality and human rights.** Sexuality education provides an opportunity to address the relationship between sexuality, gender and power. It is important that digital resources do not perpetuate harmful gender norms, but provide a medium to challenge gender biases and harmful gender stereotypes; address discrimination based on sexual orientation, gender identity and expression; and avoid relationship abuse and gender-based violence. Sexuality education must promote gender equality and inclusion to help young people develop respectful relationships and healthy sexual lives.

III. Achieve more together

- i. **Empower young people – from consumers to active creators.** Solutions need to be designed together with users. This review found examples of young people participating in the development of sexuality education media; however, there is opportunity for a greater breadth and depth of user-centered design and youth engagement. Youth-centered methodologies to be explored include: co-research to identify ‘what is missing’ and ‘what is working’ in digital spaces from the youth perspective; ideation and co-design of solutions regarding content, platform, design, and channels for sexuality education; and launch of solutions with dissemination through digital influencers and promotion through peer and youth networks. Co-creation should engage representative groups of girls, boys and gender diverse young people, particularly hard-to-reach populations such as out-of-school children and children with disabilities.
- ii. **Collaborate with multiple stakeholders.** Support the emerging eco-system of groups that deliver sexuality education in digital media and build a collaborative environment that engages multiple stakeholders across disciplines and industries. Develop a network of digital sexuality education providers and content creators to share ideas and learnings, discuss issues and opportunities, stimulate creativity and co-creation, and promote quality assurance and community self-regulation. Organizations with experience in sexuality education play a role in technical support and guidance for this emerging digital ecosystem. Other key partners may include: those with expertise in tailoring and disseminating high quality digital-media solutions; Google and other search engines, to enable search optimization for trustworthy content; and dating apps and social media, for advertising and promotion targeting young people. Consider liaising with sex positive organizations or even producers and advocates of sexually explicit media, to inform guidance on safe, sex-positive, pleasure-oriented materials.



IV. Push the boundaries

- i. **Dare to innovate.** Support new digital solutions that empower youth-led creativity and stimulate engagement. Digital sexuality education can go beyond websites, social media and apps and can include trans-media approaches, artificial intelligence chatbots, computer games, cartoon competitions, blogging, YouTube channels, TV spots, soap operas, virtual reality, augmented reality and other edutainment approaches. Consider brokering new, untested alliances with adolescent influencers such as bloggers, vloggers, Instagrammers, YouTubers, anime designers, soap scriptwriters, game-developers and producers of sexually-explicit materials.
- ii. **Keep improving the user journey.** Ensure continuous improvement of the user experience with strategies such as real-time feedback and iterative design. This will help ensure the needs of young people are being met and increase the functionality of media, user satisfaction and views.

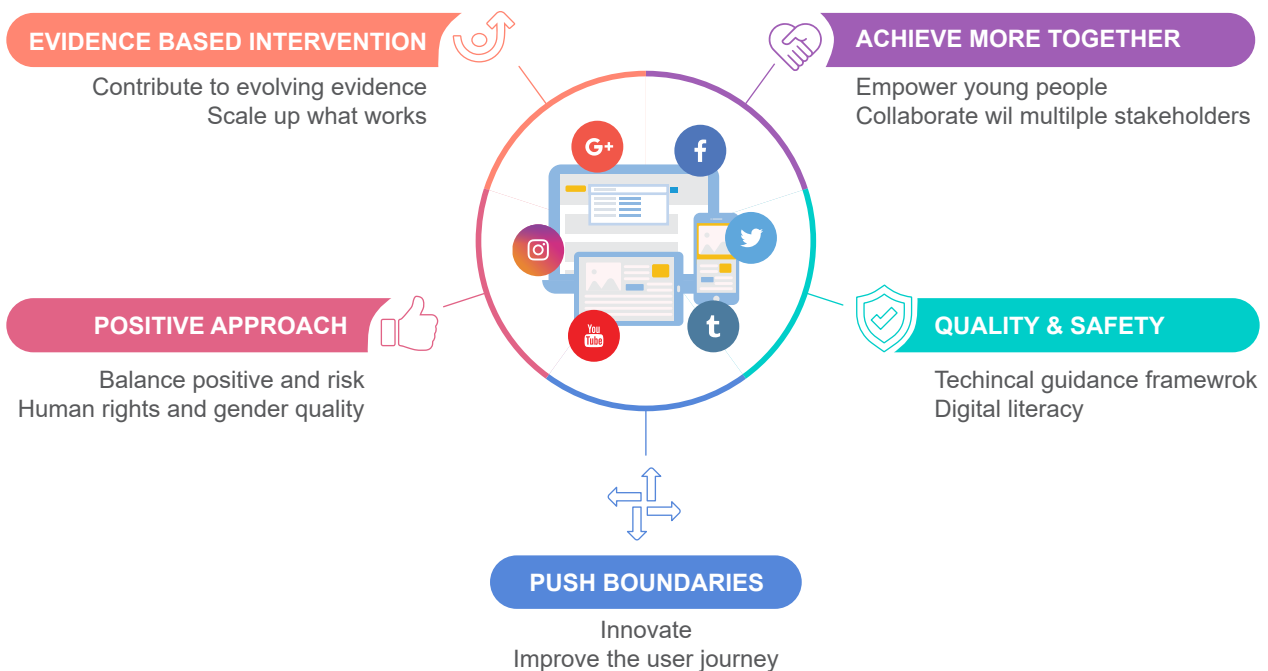
*We need new and innovative approaches to sexuality education.
We need to think outside the box and leverage technology and
connectivity of girls and boys in the region.*

Karin Hulshof, Regional Director, UNICEF EAPRO, 2016

V. Increase evidence-based intervention

- i. **Scale-up what works.** Digital sexuality education may start as localized solutions, tailored to adolescents' sexual and reproductive health issues, language and culture, then grow regionally or even globally. However, it is pivotal to understand the uptake and use and what works. Innovative data sources, such as Google Big Data Analytics, may assist in measuring the impact of digital solutions. Real-time monitoring of user satisfaction and research to understand impact are also key. Include assessment of cognitive (knowledge), affective (attitudes, values, motivation, agency, emotions) and behavioural (skills) change and whether digital sexuality education are perceived as promoting gender equality and are sex-positive.
- ii. **Contribute to the evolving evidence.** There is a lack of rigorous evidence on the impact of digital sexuality education and a need to better understand how digital solutions affect users' knowledge, attitudes and behaviours and whether they encourage respectful and gender equal relationships, safe sex, agency to negotiate condom use, and STI/HIV testing. Promote digital monitoring and evaluation systems to generate data and insights, that can be shared, and contribute to the evolving evidence of what works.

FIGURE 7. RECOMMENDATIONS FOR THE DESIGN AND IMPLEMENTATION OF DIGITAL SEXUALITY EDUCATION



References

1. UNFPA, UNESCO, WHO, *Sexual and Reproductive Health of Young People in Asia and the Pacific: A review of issues, policies and programmes*, UNFPA, Bangkok, 2015, <http://asiapacific.unfpa.org/sites/asiapacific/files/pub-pdf/UNFPA%20SHR%20YP%20AP_2015%20for%20web-final.pdf>
2. Burnet Institute, *Sexual and Reproductive Health of Unmarried Young People in Asia and the Pacific: Review of Knowledge, Behaviours and Outcomes*, UNFPA Asia Pacific Regional Office, Bangkok, 2016.
3. Kennedy, E., N. Gray, P. Azzopardi, and M. Creati, et al., 'Adolescent Fertility and Family Planning in East Asia and the Pacific: A review of DHS reports', *Reproductive Health*, <<http://reproductive-health-journal.biomedcentral.com/articles/10.1186/1742-4755-8-11>>, accessed 24 August 2017.
4. UNICEF, *Adolescents under the Radar in the Asia-Pacific AIDS Response*, UNICEF EAPRO, Bangkok, 2015.
5. Rankin, K., A. Heard, and N. Diaz, 'Adolescent Sexual and Reproductive Health: Scoping the impact of programming in low-and middle-income countries', International Initiative for Impact Evaluation, London, 2016.
6. Patton G., S. Sawyer, J. Santelli, D. Ross, and R. Afifi, 'Our Future: A Lancet commission on adolescent health and wellbeing', *The Lancet*, 2016.
7. Guadamuz, T. E., Wimonstate, W., Varangrat, A., Phanuphak, P., Jommaroeng, R., Mock, P.A. et al., 'Correlates of Forced Sex Among Populations of Men Who Have Sex with Men in Thailand', *Arch Sex Behavioral Journal*, vol. 40, no. 2, April 2011, pp. 259–266.
8. World Bank, World Bank Data.
9. UNFPA, UNICEF, *Background Paper: 'Understanding patterns and relationships of adolescent pregnancy, child marriage and early union --An overview of the situation in Southeast Asia and Mongolia'*, UNICEF, Bangkok, 2018.
10. UNFPA, *State of World Population: 10 - How our future depends on a girl at this decisive age*, UNFPA, New York.
11. UNICEF, *Child Marriage: Progress and prospects*, UNICEF, New York, 2017.
12. UNICEF, *Harmful Connections: Examining the relationship between violence against women and violence against children in the South Pacific*, UNICEF, Suva, 2015.
13. Boonstra, H., 'Advancing Sexuality Education in Developing Countries: Evidence and implications', *Guttmacher Policy Review*, vol. 14, no. 3, 2011.
14. Vanwesenbeeck, I., J. Westeneng, and T. de Boer, 'Lessons Learned from a Decade Implementing Comprehensive Sexuality Education in Resource Poor Settings: The world starts with me', *Sex Education*, vol. 16, no. 5, pp. 471–486.
15. UNESCO, *Emerging Evidence, Lessons and Practices in Comprehensive Sexuality Education: A global review*, UNESCO, Paris, 2015.
16. UNESCO, *Review of the Evidence on Sexuality Education: Report to inform the update of the UNESCO international technical guidance on sexuality education*, 2016.
17. UNESCO, *Review of Policies and Strategies to Implement and Scale Up Sexuality Education in Asia and the Pacific*, UNESCO, Bangkok, 2012.
18. Thailand Ministry of Education, *Review of Comprehensive Sexuality Education in Thailand*, UNICEF, Bangkok, 2016.
19. UNESCO, *International Technical Guidance on Sexuality Education: An evidence-informed approach for schools, teachers and health educators*, UNESCO, Paris, 2009.
20. UNESCO, *International technical guidance on sexuality education: An evidence-informed approach*, UNESCO, Paris, 2018.
21. Haberland, N., 'The Case for Addressing Gender and Power in Sexuality and HIV Education: A comprehensive review of evaluation studies', *International Perspectives on Sexual and Reproductive Health*, vol. 41, no. 1, 2015, pp. 31–42.
22. UNESCO, *Comprehensive Sexuality Education: The challenges and opportunities of scaling-up*, UNESCO, Paris, 2014.
23. UNFPA, 'UNFPA Operational Guidance for Comprehensive Sexuality Education', UNFPA, New York, 2014, <http://www.unfpa.org/sites/default/files/pub-pdf/UNFPA_OperationalGuidance_WEB3.pdf>.

24. 'We Are Social', *Digital in 2018 Global Overview*, 29 January 2018.
25. UNICEF, *The State of the World's Children 2017: Children in a digital age*, UNICEF, New York, 2017.
26. Livingstone, S., J. Carr, and J. Byrne, *One in Three: Internet governance and children's rights*, UNICEF Office of Research, Florence, 2016.
27. GSM Association, *The Mobile Economy*, GSMA, London, 2016. 28.
28. China Internet Network Information Center, *Statistical Report on Internet Development in China*, 2016.
29. GSM Association, NTT Docomo, *Children's Use of Mobile Phones: An international comparison*, GSMA & NTT Docomo, Japan, 2016.
30. GSM Association, NTT Docomo, *Children's Use of Mobile Phones: An international comparison 2012*, GSMA & NTT Docomo, Japan, 2013.
31. Third, A., D. Bellerose, U. Dawkins, et al., *Children's Rights in the Digital Age: A download from children around the world*, Young and Well Cooperative Research Centre, Melbourne, 2014.
32. Anderson, M., and J. Jingjing, *Teens, Social Media & Technology 2018*, Pew Research Center, 2018.
33. Wartella, E., V. Rideout, and H. Montague, et al., 'Teens, Health and Technology: A national survey', *Media and Communication*, vol. 4, no. 3, 16 June 2016.
34. Byrne, J., D. Kardefelt-Winther, and S. Livingstone, et al., *Global Kids Online Research Synthesis, 2015-2016*, UNICEF Office of Research, Innocenti and London School of Economics and Political Science, 2016.
35. Global Kids Online, *Global Kids Online: The Philippines executive summary*, 2016.
36. We Are Social, 'Digital in 2018 in Southeast Asia Part 2: South-East', <<https://www.slideshare.net/wearesocial/digital-in-2018-in-southeast-asia-part-2-southeast-86866464>>, accessed 23 April 2018.
37. Livingstone, S., and J. Mason, *Sexual Rights and Sexual Risks Among Youth Online: A review of existing knowledge regarding children and young people's developing sexuality in relation to new media environments*, London School of Economics, London, 2015.
38. Oosterhoff, P., Muller, C., and K. Shephard, 'Sex Education in the Digital Era', *IDS Bulletin*, vol. 48, no. 1, 2017.
39. Lucero, L., 'Safe Spaces in Online Places: Social media and LGBTQ youth', *Multicultural Education Review*, vol. 9, no. 2, 3 April 2017, pp. 117-128.
40. Robinson, K., P. Bansel, and N. Denson, et al., 'Growing Up Queer: Issues facing young Australians who are gender variant and sexuality diverse', Trove, <<https://trove.nla.gov.au/work/189937744?selectedversion=NBD52552187>>, accessed 11 February 2019.
41. UNFPA, *The Evaluation of Comprehensive Sexuality Education Programmes: A focus on the gender and empowerment outcomes*, UNFPA, New York, 2015.
42. McCarthy, O., K. Carswell, and E. Murray, et al., 'What Young People Want from a Sexual Health Website: Design and development of sexunzipped', *Journal of Medical Internet Research*, vol. 14, no. 5, 12 October 2012.
43. Sabina, C., J. Wolak, and D. Finkelhor, 'The Nature and Dynamics of Internet Pornography Exposure for Youth', *Cyberpsychology and Behavior, The Impact of the Internet and Multimedia Virtual Reality on Behavior and Society*, vol. 11, no. 6, 11 December 2008, pp. 691-693.
44. Lou, C., Y. Cheng, and E. Gao, et al., 'Media's Contribution to Sexual Knowledge: Attitudes and behaviors for adolescents and young adults in three Asian cities', *Journal of Adolescent Health, the Official Publication of the Society for Adolescent Health and Medicine*, vol. 50, no. 30, March 2012, pp. 26-36.
45. Grudzen, C., M. Elliott, and P. Kerndt, et al., 'Condom Use and High-Risk Sexual Acts in Adult Films: A comparison of heterosexual and homosexual films', *American Journal of Public Health*, vol. 99, no. 1, April 2009, pp. 152-156.
46. Dines, G., *Pornland: How porn has hijacked our sexuality*, Beacon Press, Boston, 2010.
47. Owens, E., R. Behun, and J. Manning, et al., 'The Impact of Internet Pornography on Adolescents: A review of the research', *Sex Addict Compulsivity*, vol. 19, 2012, pp. 99-122.
48. Van Heijningen, M., and L. van Clief, 'Enabling Online Safe Spaces: A case study of love matters', *IDS Bull*, Kenya, 2017, <<http://bulletin.ids.ac.uk/idsbo/article/view/2842>>, accessed 1 August 2017.
49. Saner, E., 'Masturbation Hacks and Consent Advice: How YouTubers took over sex education', *The Guardian*, 12 March 2018.
50. Amaze, 'Amaze', <<http://amaze.org/>>.
51. Scarleteen, 'Sex Ed for the Real World', <<http://www.scarleteen.com/>> accessed 11 September 2017.
52. Green, Laci, 'Sex Ed for the Internet', <<https://www.lacigreen.tv/>> accessed 11 September 2017.
53. Sex, Etc., 'Sex Education by Teens for Teens', accessed 11 September 2017.
54. Juicebox, 'Welcome', <<https://www.juiceboxit.com/>>, accessed 11 September 2017.
55. Kessler S., 'This App Takes A New Approach To Sex Ed', <<https://www.fastcompany.com/3058661/a-new-approach-to-sex-ed-fun>>, accessed 11 September 2017.

56. Sanoff, R., 'It Matters, An Awesome Sex Ed App, Is Launching In The Fall, Plus 5 Other Apps Changing How We Access Sexual Health and Education Resources', <<https://www.bustle.com/articles/94099-it-matters-an-awesome-sex-ed-app-is-launching-in-the-fall-plus-5-other-apps>>, accessed 11 September 2017.
57. Sherman, E., '5 Online Tools That Give Teens the Sex Ed They Need', <<https://brightthemag.com/5-online-tools-that-give-teens-the-sex-ed-they-need-fa4fcb6d5c57>>, accessed 11 September 2017.
58. Vopham, V., 'My Sex Doctor App Tells You Everything You Need to Know About Getting It On', <<https://www.bustle.com/articles/25879-my-sex-doctor-app-tells-you-everything-you-need-to-know-about-getting-it-on>>, accessed 11 September 2017.
59. P&G School Programs, 'Puberty Materials for Parents', P&G School Programs, <<https://www.pgschoolprograms.com/Parents>>, accessed 11 September 2017.
60. OMGYes.com, 'The Science of Women's Pleasure', OMGYes.com, <<https://www.omgyes.com/>>, accessed 11 September 2017.
61. *SexPositive*, <<https://itunes.apple.com/us/app/sexpositive/id705391925?mt=8>>.
62. Zanghellini, A., 'Underage Sex and Romance in Japanese Homoerotic Manga and Anime', *Society for Empirical Legal Studies*, vol. 18, no. 2, June 2009, pp. 159–177.
63. Lent, J., *Themes and Issues in Asian Cartooning: Cute, cheap, mad and sexy*, Popular Press, 1999.
64. Omori, S., 'Manga and Anime: Japan still treating children as sexual objects', *Aljazeera*, 2014, <<https://www.aljazeera.com/indepth/opinion/2014/08/manga-anime-japan-still-treatin-201484145420634173.html>>.
65. Pornhub Sexual Wellness Center, <<https://www.pornhub.com/sex/>>, accessed 11 September 2017.
66. Koeworakul, T., Juicy Peach, Google Play, accessed 11 September 2017. <<https://apkpure.com/juicy-peach/me.unit24.juicypeach.android>>.
67. Opendream, Judies, Google Play, accessed 11 September 2017. <<https://apkpure.com/judies/com.opendream.condomgame>>.
68. UNFPA, Unala, <<https://unala.net/>>, accessed 12 September 2017.
69. Opendream, Judies, Opendream, <<https://www.opendream.co.th/en/project/judies-en>>.
70. Opendream, Love n lol, <<https://apps.apple.com/th/app/love-n-lol/id590654793>>.
71. Opendream, Love Not Yet, <<https://apps.apple.com/th/app/love-not-yet/id493582143>>.
72. Opendream, Me Sex, Apple, <<https://itunes.apple.com/th/app/me-sex/id598921066?mt=8>>.
73. Girl Effect, 'Springster: Propelling a new generation of connected girls', Girl Effect, <<https://www.girleffect.org/what-we-do/mobile-platforms/springster/>>, accessed 11 September 2017.
74. APKPure.com, Pyo Pyo May: For girls and young women for Android, <<https://apkpure.com/pyo-pyo-may-for-girls-and-young-women/com.keoeoetech.pyopyomay>>, accessed 13 February 2019.
75. OWHelath Inc., Flo Period & Ovulation Tracker, <<https://itunes.apple.com/us/app/flo-period-tracker-period-ovulation-tracker/id1038369065?mt=8>>.
76. Simple Design Ltd., Period Tracker - Period Calendar - Ovulation Tracker, Google Play, <<https://play.google.com/store/apps/details?id=com.popularapp.periodcalendar>>.
77. SKATA, <<http://skata.info/article/search?keywords=remaja>>, accessed 20 April 2018.
78. Rutgers, 'In Depth: The world starts with me', *Rutgers*, <<https://www.rutgers.international/what-we-do/comprehensive-sexuality-education/depth-world-starts-me>>, accessed 11 September 2017.
79. Path2Health Foundation, Love Care Station *เลิฟแคร์ สถานีรักกล้าชีวิต - เลิฟแคร์ตลอดใจคุณ*, <<https://www.lovecaresation.com/%E0%B9%80%E0%B8%A5%E0%B8%B4%E0%B8%9F%E0%B9%81%E0%B8%84%E0%B8%A3%E0%B9%8C%E0%B8%84%E0%B8%B7%E0%B8%AD%E0%B8%AD%E0%B8%B0%E0%B9%84%E0%B8%A3/>>, accessed 11 September 2017.
80. Jotikasthira, O., 'Let's Talk About Sex, Professor Tells Ppacked Seminar', *Bangkok Post*, 2017, <<https://www.bangkokpost.com/news/general/1300675/>>.
81. BK Staff, 'This Illustrator Challenges Rape Culture in Thailand', *BK Magazine*, 2017, <<http://bk.asia-city.com/city-living/news/illustrator-challenges-rape-culture-thailand>>.
82. Thai Health Promotion Foundation, Talk about SEX, <<http://talkaboutsex.thaihealth.or.th/>>.
83. Mekhonghoanhao, <<https://www.mekhonghoanhao.com/giao-duc-gioi-tinh-cho-tre-bang-cach-nao-709.html>>.
84. SUC-KHOE-TINH-DUC, 'Tin tức CẬP NHẬT', Báo Người Lao Động Online, <<https://nld.com.vn/suc-khoe-tinh-duc.html>>, accessed 23 April 2018.
85. VCCorp.vn, 'Trang Tin Sức Khỏe Và Tư Vấn Sức Khỏe', <<http://dantri.com.vn/suc-khoe/kien-thuc-gioi-tinh.htm>>, accessed 23 April 2018.
86. Sức Khỏe Sinh Sản, 'Giao Duc Suc Khoe Sinh S', <<http://suckhoesinh-san.com.vn/giao-duc-suc-khoe-sinh-san/>>, accessed 23 April 2018.

87. 'Đề Tài Truyền Thông Giáo Dục Về Sức Khỏe Sinh Sản: Tài liệu, tai lieu', <<http://tai-lieu.com/tai-lieu/de-tai-truyen-thong-giao-duc-ve-suc-khoe-sinh-san-6804/>>, accessed 23 April 2018.
88. UNESCO, 'UNESCO Launched "YouthKnows" Virtual Classroom to Promote HIV and Sexuality Education in China', UNESCO Office in Bangkok, Bangkok, 2014, <<http://www.unescobkk.org/education/ict/online-resources/databases/ict-in-education-database/item/article/unesco-launched-youthknows-virtual-classroom-to-promote-hiv-and-sexuality-education-in-china-1/>>, accessed 31 July 2017.
89. UNESCO, 'Launch of "Youth@Knows" Campaign to Promote Using New Media to Increase HIV Knowledge Among Young People in China', <<http://en.unesco.org/events/launch-%E2%80%9Cyouthknows%E2%80%9D-campaign-promote-using-new-media-increase-hiv-knowledge-among-young>>.
90. Youth Health Network, <<http://www.qcqjy.com/>>.
91. Mongolia Ministry of Health, Friendly Guide to Healthy Periods, WaSH Action of Mongolia, UNICEF, Namuu, < namuu.mn>, accessed 23 April 2018.
92. Aha Sexuality Education & Counseling Center for Youth, <<https://www.ahacenter.kr/about/aha>>.
93. Informasi Kesehatan Remaja, <<http://guetau.com/>>, accessed on 20 April 2018.
94. Love Matters, 'Open, Honest, Sex-Friendly, Love Matters', <<https://lovematters.in/en>>, accessed 11 September 2017.
95. Love Matters, RNW Media, <<https://www.rnw.org/activities/love-matters>>, accessed 11 September 2017.
96. Love Matters China, Love Matters Corporate Website, <<https://lm.rnw.org/love-matters-china/>>, accessed 11 September 2017.
97. RNW Media, 'Love Matters China Hits 100 Million Page Views on Social Media', RNW Media, <<https://www.rnw.org/articles/love-matters-china-hits-100-million-page-views-social-media>>, accessed 11 September 2017.
98. Adolescent/Youth Education Net, Cnkang.com, <<http://www.qcq123.com/>>, accessed 23 April 2018.
99. Kwan, A., S. Chu, and A. Hong, et al., 'Making Smart Choices: A serious game for sex education for young adolescents', *International Journal of Game-Based Learning*, vol. 5, no. 1, January 2015, pp. 18-30.
100. UNICEF, *Adolescent Education Project Case Study (2011-2015)*, <www.unicef.cn/en/uploadfile/2016/0608/20160608032727481.pdf>.
101. WeChat, <<https://www.wechat.com/en/>>.
102. Changemakers, Weibo, <https://www.weibo.com/u/3286230851?is_hot=1>.
103. China Daily, 'Chinese Start Talking More About Sex Education', [chinadaily.com.cn](http://www.chinadaily.com.cn/china/2017-07/14/content_30118145.htm), <http://www.chinadaily.com.cn/china/2017-07/14/content_30118145.htm>, accessed 11 September 2017.
104. Hayden Royalty, Hayden Royalty: LGBTQIA & GYOPO content creator, YouTube, <https://www.youtube.com/channel/UC_k6yoitzkLyV2CcZ5YPqhg>, accessed 11 September 2017.
105. Harry, C., 'A Dose of Cath', <<https://www.youtube.com/channel/UCyt7ynTYMgmtQF0WNlguOg>>, accessed 11 September 2017.
106. Urgell, K., 'A Dose of Cath Speaks for Women', <<https://chantreakoeuturgell.wordpress.com/2017/03/01/a-dose-of-cath-speaks-for-women/>>, accessed 11 September 2017.
107. Kasztelan, M., 'Cambodia's YouTube provocateur: "Is a woman's value measured by virginity?"', *The Guardian*, <<https://www.theguardian.com/global-development/2017/sep/09/cambodia-youtube-provocateur-is-a-womans-value-measured-by-virginity-a-dose-of-cath>>, accessed 9 September 2017.
108. UNFPA Cambodia, *Love9 Series 2 Sheds Light on the Issues of Adolescents' Sexual Reproductive Health and Rights*, UNFPA, 2015, <<http://cambodia.unfpa.org/en/news/love9-series-2-shed-lights-issues-adolescents-sexual-reproductive-health-and-rights>>.
109. Love9, 'It's About LOVE', <<http://www.love9.com.kh/en/>>, accessed 11 September 2017.
110. Love9, Love9 TV and Radio Toolkit, <<http://www.love9.com.kh/en/love9-tv-and-radio-toolkit/>>, accessed 11 September 2017.
111. Low, June, SEX ED with June Low, <, YouTube, <<https://www.youtube.com/watch?v=X6mFSb02KmY>>, accessed 11 September 2017.
112. Epic by Slocum Studio, 'Good. Sex. Ed: Comprehensive sexual health education', Sex Ed Webshow, <<http://www.goodsexed.info/popek-popek/>>, accessed 11 April 2018.
113. Toolmorrow, <<https://www.youtube.com/channel/UCGwh2BAWZXszqruAyLbnkgQ>>, 11 April 2018.
114. Sereemongkonpol, P., 'The Man Who Builds Teenagers', Bangkok Post, 2015, <<https://www.bangkokpost.com/lifestyle/interview/672540/the-man-who-builds-teenagers>>.

115. UNICEF Thailand, 'UNICEF, LINE WEBTOON Launch Special Online Cartoon Episodes of "Teenage Mom" to Help Prevent Adolescent Pregnancy', UNICEF Media Centre, <https://www.unicef.org/thailand/media_26993.html>, accessed 11 September 2017.
116. Jackson, B., 'Young Pioneers for New Kind of Sex Ed', Korea Expose, 2017, <<https://www.koreaexpose.com/woori-south-korea-sex-education/>>, accessed 18 May 2018.
117. 따로튜브, <<https://www.youtube.com/channel/UCTDlcfOAebmMvARzqBYAXgg/featured>>, accessed 18 May 2018.
118. Goyangbb, <http://goyangbb.com/#_goyangbb>, accessed 18 May 2018.
119. Aosung, <<http://www.aosung.com/>>, accessed 18 May 2018.
120. Aosung, <https://www.youtube.com/watch?v=7BobMXMxX9I&list=PLJgJW0dPKtBxhEgpGTymdJmwM_uTgQJvx>, accessed 18 May 2018.
121. Shan Women's Action Network, <<https://www.facebook.com/swan.shanwomen/>>, accessed 18 May 2018.
122. Carter, L., 'Sex Ed Videos Go Viral', China File, 2013, <<http://www.chinafile.com/reporting-opinion/media/sex-ed-videos-go-viral>>, accessed 18 May 2018.
123. Evans, B., 'Bizarre Chinese Sex Education Video That Offers Tips for Children on How to Avoid Being Molested Goes Viral', *Daily Mail*, 2013, <<http://www.dailymail.co.uk/news/article-2488482/Chinese-sex-education-video-giving-tips-molested-goes-viral.html>>.
124. 'Yasmin: Yasmin's sex-ed revolution', <http://www.mmaglobal.com/case-study-hub/case_studies/view/46655>, accessed 18 May 2018.
125. PHD Media, 'Behind the Scenes of "Yasmin's Sex-Ed Revolution" Campaign by PHD, China's Only Submitting Media Agency to Win a Lion at Cannes 2017, 2017, <<http://www.phdmedia.com/china/behind-scenes-yasmins-sex-ed-revolution-campaign-phd-chinas-media-agency-win-lion-cannes-2017/>>.
126. Yang, L., 'Winning Work: Starting a sexual revolution in conservative China', *PHD Media*, 2018, <<https://www.mumbrella.asia/2018/01/winning-work-starting-a-sexual-revolution-in-conservative-china>>.
127. YouthChhlat, <<http://www.youthchhlat.org/>>, accessed 11 September 2017.
128. iLab Southeast Asia, 'How SMS Messages Revitalize the Lives of Cambodian Youth', <<https://medium.com/ilabsea-stories/in-cambodia-how-sms-help-youth-learn-about-living-700f6aeb5d9>>, accessed 11 September 2017.
129. 'Youth Chhlat, Cambodia', The HIV/AIDS Network, <<http://www.comminit.com/hiv-aids/content/youth-chhlat-cambodia>>, accessed 11 September 2017.
130. SobatASK.net, 'Home', SobatASK, <<https://www.sobatask.net/>>, accessed 11 September 2017.
131. Rutgers WPF, Online Comprehensive Sexuality Education by Sobat ASK, Rutgers WPF Indonesia, <<http://www.rutgerswpfindo.org/en/module/online-comprehensive-sexuality-education-by-sobat-ask>>, accessed 11 September 2017, accessed 11 September 2017.
132. Commission on Population Philippines, 'U4U Teen Trail Initiative: Anong bakas ang iyong iiwan?', POPCOM, <<http://www.popcom.gov.ph/10-press-releases/127-u4u-teen-trail-initiativve-anong-bakas-ang-iyong-iiwan>>, accessed 11 September 2017.
133. 'U4U: It's about u!', <<http://www.u4u.ph/>>, accessed 11 September 2017.
134. UNFPA Philippines, *Teen Trail Kicks Off in Albay*, UNFPA Philippines, 2014, <<http://philippines.unfpa.org/en/news/teen-trail-kicks-albay>>, accessed 11 September 2017.
135. SafeSpacesPH, <<https://safespaces.ph/safespacesph-depots/>>, accessed 11 September 2017.
136. Reuters, 'Mobile App for Free Condoms Launched to Fight HIV', *Manila Bulletin*, 2018, <<https://news.mb.com.ph/2018/02/03/mobile-app-mapping-free-condoms-set-up-to-help-fight-hiv-in-philippines/>>.
137. Loveyourself, 2018, <<http://www.loveyourself.ph/>>, accessed 11 September 2017ffwnVN.
138. Livingstone, S., Lansdown, G., and A. Third, *The Case for a UNCRC General Comment on Children's Rights and Digital Media*, LSE Consulting, 2017.
139. Guse, K., S. Martins, and A. Lira, et al., 'Interventions Using New Digital Media to Improve Adolescent Sexual Health: A systematic review', *Journal of Adolescent Health*, vol. 51, no. 6, 2012, pp. 535-543.
140. Jones, K., P. Eathington, and K. Baldwin, et al. 'The Impact of Health Education Transmitted Via Social Media or Text Messaging on Adolescent and Young Adult Risky Sexual Behavior: A systematic review of the literature', *Sexually Transmitted Diseases*, , vol. 41, no. 7, 2014, pp. 413-419.
141. Stevens, R., S. Gilliard-Matthews and J. Dunaev, et al., 'Social Media Use and Sexual Risk Reduction Behavior Among Minority Youth: Seeking safe sex information', *Nursing Research*, vol. 66, no. 5, 2017, pp. 368-377.

142. UNFPA Cambodia, *Cambodian Smash Hit Love9 Tackles Taboo Subject: Sexual health*, UNFPA Cambodia, 2016, <<http://www.unfpa.org/news/cambodian-smash-hit-love9-tackles-taboo-subject-sexual-health>>.
143. OneWorld UK, *Annual Narrative Report (April 2015 - December 2015): Smart youth, good future, learning about living in Cambodia*, Cambodia: One World UK, 2016.
144. Youth Chhlat, *Lessons Learnt and Results from Smart Youth, Good Future, Cambodia Pilot Project 2013-2015*, Cambodia: One World UK, 2016.
145. Sharma, V., *The Learning About Living Program: Improving sexual and reproductive health among youth in Cambodia - Findings from an endline knowledge, attitudes and practices survey*, London: One World UK, 2016.
146. Lou, C., Q. Zhao, and E. Gao, et al., 'Can the Internet Be Used Effectively to Provide Sex Education to Young People in China?', *Journal of Adolescent Health The Official Publication of the Society of Adolescent Medicine*, vol. 39, no. 5, 2006, pp. 720–728.
147. Waldman, L., and I. Amazon-Brown, 'New Digital Ways of Delivering Sex Education: A practice perspective', *IDS Bull*, 2017, <<http://bulletin.ids.ac.uk/idsbo/article/view/2843>>, accessed 1 August 2017.
148. Philpott, A., A. Singh, and J. Gamlin, 'Blurring the Boundaries of Public Health: It's time to make safer sex porn and erotic sex education', *IDS Bull*, 2017, <<http://bulletin.ids.ac.uk/idsbo/article/view/2847>>, accessed 16 April 2018.
149. Livingstone, S., and P.K. Smith, 'Annual Research Review: Harms experienced by child users of online and mobile technologies - The nature, prevalence and management of sexual and aggressive risks in the digital age', *Journal of Child Psychology and Psychiatry*, vol. 55, no. 6, 2014, pp. 635–654.
150. Third, A., *Researching the Benefits and Opportunities for Children Online*, Global Kids Online, Sydney, 2016.
151. Chen, A., M. Leung, and C. Chen, et al., 'Exposure to Internet Pornography Among Taiwanese Adolescents', *Social Behavior and Personality: An International Journal*, vol. 41, no. 1, 2013, pp. 157–164.
152. Ybarra, M.L., and K.J. Mitchell, 'Exposure to Internet Pornography Among Children and Adolescents: A national survey', *Cyberpsychology Behavior and Social Networking*, vol. 8, no. 5, 2005, pp. 473–486.
153. Martellozzo, E., A. Monaghan, and J. Adler, "...I Wasn't Sure It Was Normal to Watch It...": *A quantitative and qualitative examination of the impact of online pornography on the values, attitudes, beliefs and behaviours of children and young people*, NSPCC, 2016.
154. Lim, M., P. Agius, and E. Carrotte, et al., 'Young Australians' Use of Pornography and Associations with Sexual Risk Behaviours', *Australian and New Zealand Journal of Public Health*, vol. 41, no. 4, 2017, pp. 438–443.
155. Cook, P., C. Heykoop, and A. Anuntavoraskul, et al., 'Action Research Exploring Information Communication Technologies (ICT) and Child Protection in Thailand', *Developmental Practices*, vol. 22, no. 4, 2012, pp. 574–587.
156. Gilliam, M., J. Chor, and B. Hill, 'Digital Media and Sexually Transmitted Infections', *Current Opinions on Obstetric Gynecology*, vol. 26, no. 5, 2014, pp. 381–385.
157. 'Predator In My Phone', R.AGE, <<http://rage.com.my/predator/>>, accessed 23 April 2018.
158. UNICEF Malaysia, *New Law Needed to Better Protect Children Online*, UNICEF Malaysia, <https://www.unicef.org/malaysia/media_new_law_needed_protect_children_online.html#.Wt1njMi-mfY>, accessed 23 April 2018.
159. Livingstone, S., 'No, the Internet Is Not Actually Stealing Kids' Innocence', *The Conversation*, 2017, <https://theconversation.com/no-the-internet-is-not-actually-stealing-kids-innocence-80543?utm_content=buffer4c41d&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer>.

