### Responsible Use of Technology to Combat Cyberbullying Among Young People

#### Chintha Kaluarachchi

Centre for Cyber Security Research and Innovation, Deakin University. c.kaluarachchi@deakin.edu.au

#### **Matthew Warren**

Centre for Cyber Security Research and Innovation, RMIT University.

#### Frank Jiang

Centre for Cyber Security Research and Innovation, Deakin University.

#### **Abstract**

Cyberbullying has become a major challenge for authorities, parents, guardians and schools in particular, especially in the era of the digital world. This paper reviews available empirical research to examine the issues such as the responsible use of technology amongst young people, parents and schools responsibility to protect against Cyberbullying. The analysis revealed that the responsible use of technology provides better practices to encourage comparisons because of these new digital technologies. Parents and educators are the key to Cyber ethics, therefore teaching the responsible use of technology whilst focusing on Cyber ethics at the start of young people's exposure to technology use may be an excellent strategy to reduce the growth and impact of Cyberbullying. The paper will also review good practices for young people, school communities and parents to prevent and manage Cyberbullying and unethical behaviours online. These claims are examined using current literature to ensure a better understanding of responsible use of technology and understanding of Cyberbullying in order to support young people to combat this immerging societal challenge.

**Keywords**: Awareness, Cyberbullying, Cyber ethics, Technology, Young people and Social Media.

#### 1 Introduction

The World Wide Web is "an interactive sea of shared knowledge, made of the things our friends and we have seen, heard, believe or have figured out" (Tim Berners-Lee, 1995). The introduction of World Wide Web 2.0 allowed the Internet to be transferred to a social environment by adopting social media which enables users to generate online content and interactions on the web (Lai & Turban, 2008). New web technologies such as social networking sites and online communities are useful tools to share information and social interactions effortlessly, and these technologies also offered new opportunities for businesses (Lu & Hsiao, 2010). With the recent development of digital technologies, the Internet has become an integral part of our lives. These Internet based systems contributed to a heightened appreciation for their potential benefits; however, these are outweighed by their negative impacts such as Cyberbullying.

Cyberbullying is a worldwide phenomenon, and has become a new form of bullying which occurs through the Internet via cell phones, computer devices or handheld devices and can be anonymous and can occur 24 hours a day (Feinberg & Robey, 2008). Researchers have shown that Cyberbullying can happen at the "speed of thought" by using a collection of modern technology including sounds, transformed photos, intimidating messages, videos, slide shows and polls (Sabella et al., 2013). Further Cyberbullying can occur anytime at anyplace in contrast with traditional bullying; therefore, this has become prevalence than traditional bullying (Huang et al., 2018).

Research has also confirmed that Cyberbullying behaviours are growing in educational environments and create new ethical and legal issues including severe consequences for young people's living and learning environments, as well as physical endangerments (Smith & Yoon, 2012). Researcher Gonzales (2014) stated that "Bullying online is contrary to the moral good of a person". Some young people are threatened by online strangers in numerous ways such as sending threatening or insulting messages, spreading rumours, posting humiliating pictures, and revealing or stealing personal information (Couvillon & Ilieva, 2011; Perren et al., 2012). Having external contacts via chat or emails results in explicit sexual approaches and possibly putting young people at risk, we also see that young people are distressed and terrified via these intimidating messages (Stacey, 2009). Cyberbullying can affect someone's safety, selfperception, health, and education rights (Elci & Seckin, 2016). Violating someone's sense of well-being and lifestyle has now become a major ethical issue (So & Lenarcic, 2014). Technology (including the Internet) is a great tool which allows young people to stay in touch with the outside world and therefore provides enormous benefits for their education (United Nations Children's Fund, 2017). It is not ethical if someone is using the Internet to humiliate, harass or threaten young people. The ethical issue of Cyberbullying is that the Cyber victims are being humiliated, harassed, and threatened and this causes immense distress to people's lives with numerous health concerns including depression and suicidal behaviour among young people (Kaltiala-Heino et al., 1999). Research has shown that young people who are Cyberbullied are twice as likely to commit suicide compared to the young people who are not being bullied (Cole, 2014). Further, according to the empirical literature; the key impacts of Cyberbullying include distress (Li, 2010; Sahin, 2012), depression (Kowalski & Fedina, 2011), loneliness (Cross et al., 2009; Sahin, 2012), increased psychosomatic symptoms (Sourander et al., 2010), suicidal ideation (Aboujaoude et al., 2015; Hinduja & Patchin, 2010), low self-esteem and reduced academic performance (Smith et al., 2008). However, most of the victims of Cyberbullying do not recognise their experiences as being Cyberbullying, and about 90% of the victims did not tell their parents or other trusted adults about what they had experienced (Kowalski & Limber, 2007). The anonymous nature and lack of authority in Cyberspace make the problems even worse. Cyber ethics are key, it is very important that the moral conduct in both physical and virtual environments remain the same including showing respect for each other, being honest and not stealing others information in order to reduce Cyberbullying and unethical behaviours online.

There are numerous motivation factors which can drive Cyberbullying acts, for instance,

- 1) seeking revenge (Berger, 2007);
- 2) physical appearance, social status and experiences from the school settings (Tynes et al., 2010);
- 3) limited social and peer support (Williams & Guerra, 2007);

- 4) the ability to be anonymous (Barlett, 2015);
- 5) high environmental exposure to violence (Calvete et al., 2010);
- 6) technology capabilities and activities (Walrave & Heirman, 2011);
- 7) power imbalance (Berger, 2007; Olweus, 2013).

Social networking sites have become a ubiquitous key platform for Cyberbullying. (Livingstone et al., 2011; Ybarra et al., 2007). According to the IRIS Research, (2014) study conducted amongst 384 Australian schools, Facebook was identified as the most common platform where Cyberbullying has been reported. The IRIS research related to Cyberbullying also identified that:

55.6% of cases involved creating hate websites or social media pages;

58.4% of cases involved creating fake social networking accounts;

20.6% of cases involved personal information being posted without permission;

19.4% of cases involved inappropriate posting pictures, videos, or inappropriate image tagging.

Researchers found that 88% of US young people who use social media had witnessed harassment on social networking sites, while 15% had been victimised and 19% had harassed someone on social networking sites (Lenhart et al., 2011). There are various prevention strategies highlighted by the Cyberbullying literature for example, awareness-raising and training activities aimed at young people, parents and school personal, suitable school policies to restrict Cyberbullying behaviours and coping strategies (Kowalski et al., 2008; Shariff & Johnny, 2007; Spears et al., 2014). Most of the victims reported improvements after talking with peers and parents or someone trustworthy about the Cyberbullying incidents (Aricak et al., 2008; Berg & Breheny, 2014). Reporting Cyberbullying incidents to the content provider, or to call law enforcement was another successful strategy (Hinduja & Patchin, 2019; Slonje et al., 2013).

Many researchers agree that education plays a vital role in preventing and responding to Cyberbullying (Hinduja & Patchin, 2010; Kowalski et al., 2012; Shariff, 2005). Researchers Wong-Lo & Bullock (2011) confirmed that "a proactive approach in collaborating and educating parents, school personnel, and citizens in the communities about Cyberbullying is one step toward prevention of this evolving issue". Schools should educate students about Cyber ethics and the proper conduct to be used in the online world so that they know how to behave and keep themselves safe online (Cole, 2014). You cannot wait until young people start working to make them aware of cyberbullying because their understanding of morality and ethics are developed in their early years. The logical places to address Cyberbullying issues occur in the home and classroom (Crystal et al., 2000). According to Yamano (2004) "Cyber ethics refers to the guidelines or framework upon which students will base their ethical and moral decision making. Cyber ethics includes the guidelines for ethical and responsible use of computers, as well as the Internet". We also see that researchers state that Cyber ethics is "the nature of right and wrong in Cyberspace" (Niyazi et al., 2011). The responsible use of technology is a key aspect of Cyber ethics and refers to knowing right and wrong use of technology in the Cyberspace. If technology is applied without the consideration of ethics and governance, negative outcomes such as Cyberbullying may arise and impact society.

#### 2 Research Rationale

As a growing social phenomenon, most of the Cyberbullying research largely focuses on the prevalence and predictors of Cyberbullying (Lee, 2017), the comparison of traditional bullying and Cyberbullying (Hinduja & Patchin, 2010), risk and protective factors of Cyberbullying (Kowalski et al., 2019), coping strategies of Cyberbullying (Raskauskas & Huynh, 2015) and the characteristics of Cyber perpetrators, Cyber victims, and bystanders (Lund & Ross, 2017). Less attention has been given to Cyber ethics and the responsible use of technology to prevent Cyberbullying. Moreover, ethical or responsible use of technology and Cyber ethics have been largely disregarded in technological education (Berkowitz, 2000). Other research had confirmed that the safe and ethical uses of technology have rarely been discussed in schools (Crystal et al., 2000). There is a growing consensus that the teaching the responsible use of technology is an excellent solution to combat Cyberbullying among young people (Sabella et al., 2013; Välimäki et al., 2013). According to NSW Parliamentary Research findings, increasing the awareness of the impact of Cyberbullying and using technology responsibly to minimise Cyberbullying behaviours have become a high priority matter for authorities, parents, guardians and Australian schools in particular (Angus, 2016).

We have also seen researchers propose that youth advocates should improve and seek new knowledge related to the identification, response, and prevention of this immerging societal problem (Sabella et al., 2013). Without a careful review of the existing literature, educating or assisting young people can lead to a situation wrong decisions are being made, development of negative attitudes, and unsuccessful strategies or programs to counter Cyberbullying (Kowalski et al., 2008; Sabella et al., 2013).

#### 3 Overview of the Current Literature

This paper presents a narrative overview of the current literature relating to Cyberbullying to clarify some of the key issues related to the positive or responsible use of technology. The Narrative literature review process provides "a synthesis of published literature on a topic and describe its current state-of-art" (Ferrari, 2015). Within this paper we employed a narrative review methodology to discuss the following issues:

- a) what type of actions/responses regarding the responsible use of technology are the most effective in preventing and responding to Cyberbullying among young people;
- b) identify what the web-based or app-specific interventions are available to deal with Cyberbullying;
- c) ways to use social media responsibly to deal with Cyberbullying.

The paper also looks at good practices for young people, school communities and parents to prevent and manage Cyberbullying and associated risks. The research approach taken in the paper was a multi-step approach. First, to review the literature, we performed an extensive review of the available related literature focusing on to the Cyberbullying, Cyber ethics and the responsible use of technology. In terms of this study we focused on keywords such as Cyberbullying (or related terms), interventions or preventive strategies (or related terms), Cyber ethics (or related terms), responsible use of technology (or related terms), and young people (or related terms). As part of this process we also looked at government reports and reviewed online resources such as blogs and webpages to collect other types of information.

# 3.1 What type of actions/responses regarding the responsible use of technology are most effective in preventing and responding to Cyberbullying among young people

Young people need to develop online safety skills and netiquette, especially for social networking sites, to allow them to avoid or deal with issues such as Cyberbullying. Many people believe that they already understand and are able to recognise what Cyberbullying is (Sabella et al., 2013). However, less than half of the 11-13-year-olds identified in the Livingstone study could block unwelcomed messages online or bookmark a website whilst only a third of respondents were able to block unwanted mails (Livingstone et al., 2011). Therefore it is crucial for young people to develop an understanding of individual behaviour about Cyber safety and empower young people to use critical thinking skills and use technology responsibility to mitigate Cybersecurity risks they could face (Coventry et al., 2014; Yamano, 2004). There are various Cybersecurity tools, technologies and best practices that are available to remedy issues relating to Cyberbullying. From a Cybersecurity perspective, the use of antivirus software and firewalls, the use of unique strong passwords, the installation of the latest security updates, the use of only reliable and secure connections, computers, devices, websites and services are some of the essential practices of Cybersecurity to protect young people (Coventry et al., 2014). Users have to keep up to date about Cybersecurity risks, provide a minimum amount of personal information online especially in social media sites, keep users identity secure and protected and report any Cyber incidents to the relevant authorities (Coventry et al., 2014). The Centre for the Prevention of Violence showed that 70% of young people agreed that blocking cyber friends stopped the abuse, other research also confirmed that respondents reported finding active solutions to Cyberbullying such as blocking the harasser (Aricak et al., 2008; Slonje et al., 2013; Smith et al., 2008). The researcher Perren et al., (2012) found that avoidance and confrontation are also successful strategies to overcome Cyberbullying acts, this is also reinforced by other research that shows victims would avoid online activities in order to stop Cyberbullying (Hoff & Mitchell, 2009; Smith et al., 2008). However, encouraging young people to avoid or stay away from technology to stop Cyberbullying is shown to be an impractical solutions and overall an unsuccessful long-term strategy (Hinduja & Patchin, 2009). Youth-serving professionals can teach young people the necessary skills and information to respond to the problems of Cyberbullying (Sabella et al., 2013).

Besides, an awareness-raising and training programs can be used to increase the awareness of users on how to use technology responsibly (Coventry et al., 2014). Other researchers also shown that awareness-raising and professional development programs that would guide young people, educators, and parents in navigating the problems of Cyberbullying (Kowalski et al., 2008; Shariff & Johnny, 2007; Slonje et al., 2013; Spears et al., 2014). According to the USA National Institute of Standards and Technology "Awareness is not training. The purpose of awareness presentations is simply to focus attention on security. Awareness presentations are intended to allow individuals to recognise IT security concerns and respond accordingly" (Bada et al., 2019). So, it is important to link Cybersecurity awareness with other Cyber safety matters such as Cyberbullying.

The second key issue is an educator's responsibility to teach their students the ethical use of technology and online safety skills as young people 's behaviour cannot be controlled by a policy itself (Shariff, 2005). Cooperative learning techniques, school conferences, consistent disciplinary methods, effective school policies, skilled classroom management by teachers and

peer support programs are some of the successful strategies to encourage positive uses of technology to resolve Cyberbullying (Myers & Cowie, 2019; Välimäki et al., 2013). Schools and educators offer an ideal environment to improve online safety skills and other necessary skills, such as digital citizenship skills for young people (Hinduja & Patchin, 2019; Välimäki et al., 2013). According to the Välimäki et al., (2013) study that looked at 35 national guidelines related to young people skills development found more than 40% of the guidelines highlighted that digital citizenship skills and netiquette are the most critical skills for young people.

Online safety skills and critical literacy skills are associated with each other and improving one skill may also improve other skills (Livingstone et al., 2011). It is important that Cyberbullying prevention programs should be incorporated into the school awareness-raising programs and curriculum-based activities (Smith et al., 2013). Schools can maintain a positive and safe school environment together with awareness-raising, positive school ethos and rewarding positive use of technology (Smith et al., 2016; Välimäki et al., 2013). Further school officials can have the right to restrict student expression online or to discipline students to avoid inappropriate behaviour or speech online (Hinduja & Patchin, 2011). Students should understand that all forms of bullying are wrong and those who are involved in bullying (including Cyberbullying) will be subject to discipline punishments (Hinduja & Patchin, 2019).

Another key component in the reduction of Cyberbullying is to develop clear school policies against Cyberbullying (Couvillon & Ilieva, 2011; Hinduja & Patchin, 2009; Myers & Cowie, 2019; Perren et al., 2012). School policies and practices should discourage bullying behaviours and encourage positive social and technical skills (Välimäki et al., 2013). Research has also shown that peer behaviour and social influence has a direct impact on users' behavioural intention (Li, He et al. 2019). School counsellors and educators can use students to educate their friends or classmates about the responsible use of technology, they can train younger peers so that they will make wise decisions online from an earlier age (Sabella et al., 2013). Research has shown that peer support programs or buddy programmes play an essential role in both the intervention and prevention of Cyberbullying (Myers & Cowie, 2019; Perren et al., 2012; Sabella et al., 2013). The other option schools can implement is to teach Cyber ethics to their students through the use of external influences such as honour codes, monitoring software, blocking or filtering software (Willard, 2002; Yamano, 2004).

Another key category of prevention strategy is the parent's responsibility to teach young people about the ethical use of technology and digital skills. Parents need to be role models, talking and helping young people when needed and monitoring their ICT use; and also parents need to develop their own IT skills (Lenhart et al., 2011; Perren et al., 2012; Sabella et al., 2013; United Nations Children's Fund, 2017; Välimäki et al., 2013). According to the Välimäki et al., (2013) study, "parents helping young people to use technology in positive ways for enforcing social interactions" was the most acknowledged parental role. Other studies such as Perren et al., (2012) highlight the importance of raising parents' knowledge about safe online behaviours and improved their understanding of the technology to reduce the digital divide that possibly exists among parents and young people. Parents also need to keep up to date with the technology that young people use to communicate online and where Cyberbullying could occur (Sabella et al., 2013; Välimäki et al., 2013). Parents often do not recognise that even though young people are technically more skilled than they are, they might not know how to use technology responsibly or in safe manner (Välimäki et al., 2013). Parents need to get young people to understand that any form of inappropriate behaviour will not be accepted, and the

use of technology is a privilege, not a right and with such privileges comes responsibilities (Hinduja & Patchin, 2014).

## 3.2 What are the web-based or app-specific interventions available to deal with Cyberbullying

Cyberbullying is a social problem that occurs though the undesirable use of IT technologies. Given the extensive exposure young people have online, it is essential to understand webbased or application (app) specific interventions available to combat Cyberbullying.

One of the best strategies for ensuring young people's safety online is by adding parental control software to young people's digital devices, this empowers parents to manage and limit their online activities (Berg & Breheny, 2014). Parental control software can be used to block or limit access to websites, manage social apps, manage in-app purchasing, monitor online activities, schedule or limit screen time and filter unwanted or sensitive contents. Technology examples include Family Zone®, Net Nanny®, Web Watcher®, PC Pandora®, Family Protector®, these are well-known parental control and web filtering software systems which can be used to protect young people from unwanted interactions online (Berg & Breheny, 2014).

Many of the antivirus programs that are used also include parental control tools. For instance, Norton Security Premium® is a parental control antivirus programs for families. Norton Parental Control provides tools to see what videos young people watch, what websites they visit, the search terms they use, the apps they download, mobile GPS location monitoring and content filtering feature for PCs and other devices (Norton, 2020).

There are a variety of mobile apps designed to help protect young people from bullying and to create awareness around the issue of Cyberbullying. Example apps include BullyBlock® which is a free Android app designed to captures and block bullies. This app allows young people to record verbal bullying and harassment secretly, block unwanted calls, messages and apply automatic respond features and collected information about abusive behaviour that can be shared with parents, teachers or law enforcement (Notar et al., 2013; Scheff, 2016). Bully Tag® is another Android and Apple support mobile app that allows young people to report Cyberbullying incidents anonymously to school officials. This app allows young people to record and send incidents to trusted adults with a single click of a button. STOPit® is another mobile app that allows young people instantly and anonymously report incidents to school or other trusted adults (Scheff, 2016). McAfee Safe Eyes® is an example of a filtered mobile browsers that helps parents to manage young people's Internet activities on their Apple mobile devices (Notar et al., 2013).

We are now seeing that mobile phone companies are including more features to safeguard young people from Cyberbullying. Apple has recently introduced iOS 12, which includes new features to reduce interruptions, manage screen time and set goals or limit activities. The iOS 12 version includes activity reports, app limits and do-not-disturb and notifications controls designed to help parents to reduce interruptions and manage screen time (Apple, 2018). These are just a few examples of web-based or app-specific interventions available to deal with Cyberbullying.

#### 3.3 Ways to use social media responsibly to deal with Cyberbullying

Even though social media is a great tool to stay in touch with friends and family, sometimes it can create ethical issues such as Cyberbullying (Gonzales, 2014). As discussed before

Cyberbullies use social media because it is so widely used. This form of bullying distresses young people and adversely affects their families, teachers, and others around them (Elci & Seckin, 2016). The pressure of social media is real and has a consequence for all users (eSafety Commissioner, 2020). Social media users should have an in-depth understanding of how to use social media, the features and capabilities as well as potential effects when creating a social media account (Gonzales, 2014). Some common strategies for young people to stay safe in the social media space are; unfollow the social media accounts of people that they feel unsure about, turn off message notifications and have the ability leave unwanted social media contacts (e.g. to leave a chat session with an unknown person); talk to a person of responsibility (a parent or guardian) if they feel pressured by someone on social media, remove or report harmful social media, strength individual privacy settings and limiting the amount of personal information share via social media (Carter, 2013; eSafety Commissioner, 2020; Gonzales, 2014; Lenhart et al., 2011).

It is very important for young people to develop self-discipline when using social media to avoid unethical situations (Gonzales, 2014). There are also issues due to lack of awareness. Vulnerable and disadvantaged young people may be less likely to understand the complexity of the systems they are using (Cole, 2014; United Nations Children's Fund, 2017). Social media literacy campaigns also good strategy to address the problems of Cyberbullying (Gonzales, 2014).

We are seeing that social media organisations are doing more to tackle the issue of Cyberbullying via their platforms. Facebook is the largest online community and the Facebook "Help Centre" includes information on Cyberbullying and their "Bullying Prevention Hub" provides resources and tips for young people, parents, and educators to prevent Cyberbullying (Facebook, 2020a). The Facebook Help Centre consists of a series of information sources related to bullying including "what should they do if being bullied, harassed or attacked by someone on Facebook", "how to remove users from abusive tags", "unfriending and blocking Facebook users", and "how to report abusive content". Facebook also provides tips and helpful resources for parents, guardians, and educators as to how they can help young people to use Facebook wisely. Further, Facebook has also introduced suicide prevention tools in a global context (Berg & Breheny, 2014; Facebook, 2019). In addition, Facebook 'Digital Literacy Library' provide lesson plans specially designed for young people to develop their skills in relation to privacy and reputation, identity exploration, positive behaviour, security, and community engagement modules. (Facebook, 2020b).

Similarly, the Twitter "Help Centre" provides support for its users by providing safety and security features to deal with online abuse and bullying. The Help Centre comprises of information on privacy controls including "How to protect personal information", "How to deal with spam and fake accounts and sensitive content" and "How to report abusive behaviour including helping someone with online abuse" (Berg & Breheny, 2014; Twitter, 2019).

#### 4 Discussion

The narrative review presented in this paper reviewed a significant number of studies on Cyberbullying relating to young people. Most of the studies focus on the use of technology, online risky behaviours, ethical or responsible use of technologies to prevent and respond to Cyberbullying. The following Table 1 (based upon the narrative review) presents a summary

of the actions, ongoing tools, technologies, and best practices that can help young people to protect themselves against Cyberbullying.

Actions, tools, technologies, and best practices related to responsible use of technology.	Example Actions or Activities	Source	Who is responsible?
Improvement of online safety skills, critical thinking skills, best practices, and netiquette.	Use only reliable and secure connections, computers, devices, websites, and services; Share a minimum amount of personal information online; Keep young people's identity secure and protected; Implementing good Cyber Security measures.	Coventry et al., 2014; Couvillon & Ilieva, 2011; Sabella et al., 2013; Livingstone et al., 2011; Välimäki et al., 2013; Yamano, 2004.	Young people, parents, and educators.
Technology-based solutions.	Blocking unwanted Cyber friends; Blocking annoying messages; Remove harmful/anonymous messages or content.	Aricak et al., 2008; Coventry et al., 2014; Hoff & Mitchell, 2009; Sabella et al., 2013; Slonje et al., 2013; Smith et al., 2008; Yamano, 2004.	Young people.
Reporting of Cyber incidents.	Report Cyber incidents to parents, teachers, content providers (e.g. Facebook Help Centre, Twitter Help Centre) or call law enforcement.	Coventry et al., 2014; Hinduja & Patchin, 2019; Slonje et al., 2013; Facebook, 2019; 2020a; Twitter, 2019.	Young people, parents, and educators.
Cyber safety Awareness / Training / Development programs.	Digital literacy courses; Social media literacy campaigns; Cyber safety training.	Angus, 2016; Bada et al., 2019; Coventry et al., 2014; Elci & Seckin, 2016; Gonzales, 2014; Slonje et al., 2013; Spears et al., 2014; Shariff & Johnny, 2007; Kowalski et al., 2008.	Educators and other youth advocates.
Cyberbullying prevention programs in schools.	Cooperative learning techniques; Consistent disciplinary methods; Effective school policies; Skilled classroom management by teachers; Peer support programs; School focused awareness programs; Curriculum based activities.	Myers & Cowie, 2019; Couvillon & Ilieva, 2011; Hinduja & Patchin, 2009, 2011, 2019; Livingstone et al., 2011; Perren et al., 2012, Shariff, 2005; Sabella et al., 2013; Slonje et al., 2013; Smith et al., 2013; 2016; Välimäki et al., 2013; Yamano, 2004.	Educators.
Educate students about proper conduct in the Cyber world.	Cyber ethics education; Digital citizenship education; Education on the responsibilities and ethical use of technology.	Angus, 2016; Cole, 2014; Crystal et al., 2000; Couvillon & Ilieva, 2011; Gonzales, 2014; Hinduja & Patchin, 2014, 2019; Sabella et al., 2013; Välimäki et al., 2013; Yamano 2004.	Parents and educators.

Actions, tools, technologies, and best practices related to responsible use of technology.	Example Actions or Activities	Source	Who is responsible?
Parental Oversight.	Parents need to be Cyber safety role models; Parents need to be able to offer advice to young people on Cyber safety; Parents need to monitor young people's IT and Social Media usage.	Perren et al., 2012; Hinduja & Patchin, 2014; Sabella et al., 2013; Couvillon & Ilieva, 2011; Lenhart et al., 2011; Välimäki et al., 2013; United Nations Children's Fund, 2017.	Parents.
Parent and educator's education.	Awareness programs about new technologies and ethical behaviours; Awareness programs about effective safe online behaviours.	Sabella et al., 2013; Perren et al., 2012; Välimäki et al., 2013.	Parents and educators.
Web-based or app- specific interventions.	Promotion of the use of parental control software, antivirus programs, mobile apps with special safety features.	Apple 2018; Berg & Breheny, 2014; Coventry et al., 2014; Notar et al., 2013; Scheff, 2016; Yamano, 2004.	Young people, parents, and educators.
Responsible use of social media.	Development of effective social media usage strategies to deal with Cyber bullying.	Carter, 2013; Gonzales, 2014; Lenhart et al., 2011; eSafety Commissioner, 2020; Facebook, 2019, 2020a, 2020b; Twitter, 2019.	Young people, parents, and educators.
Promotion of resources from social media companies.	Promotion of social media platforms resources and activities, e.g. Facebook, Twitter Cyber safety forums.	Berg & Breheny, 2014; Facebook, 2019, 2020a, 2020b; Twitter, 2019.	Social media companies, educators, parents, and other youth advocates.

Table 1: Actions, Ongoing tools, technologies, and best practices to prevent and respond to Cyberbullying.

Several conclusions can be drawn from this narrative review presented in this paper with regards to the Cyberbullying issues facing young people. The issues identified are:

- 1) the existing research has shown that there are a number of preventive strategies that can be used to combat Cyberbullying for young people;
- 2) there are fewer studies published relating to the ethical or responsible use of technology to combat Cyberbullying (this could be a potential limitation to the study presented in this paper);
- 3) most of the Cyberbullying current studies revealed that the education and youth skill development are a top priority to deal with Cyberbullying among young people;

- 4) schools have a key role to educate young people about online safety skills, critical thinking skills and netiquette;
- 5) parents and educators should teach young people about Cyber ethics, digital citizenship responsibilities, as well as the positive or ethical use of technology;
- 6) the training of young people should start from an early age to assist in their development;
- 7) the importance of increasing parents and educator knowledge about Cyber Safety and associated technologies;

This paper has shown that more diverse studies are needed to minimise Cyberbullying because the main social media organisations and IT organisations have resources and systems but there are limited studies to show their impact or effectiveness.

#### 5 Conclusion, Limitations and Future Directions

As mentioned before, Cyberbullying is an intricate and ever-evolving form of bullying. Cyberbullying has the ability to impact young peoples' health and psychological well-being in numerous ways. Most of the existing Cyberbullying research largely focuses on prevalence and predictors of Cyberbullying and the comparison of traditional bullying and Cyberbullying. We have seen that less attention has been given to the ethical or responsible use of technology to prevent Cyberbullying.

In this paper, we have proposed a number of actions, tools, technologies, and best practices related to responsible use of technology that can be used to mitigate the risks associated with Cyberbullying. Schools offer an ideal environment, to help young people improve their digital skills, critical thinking skills and netiquettes needed to navigate in the digital world in a safe manner.

The Cyberbullying interventions have not been successful if they have not reviewed the existing literature explicitly. These claims are elucidated using current literature so that government agencies, policymakers, educators, and other practitioners will have a better understanding of responsible use of technology and understanding of Cyberbullying in order to support young people to combat this immerging societal challenge.

The research presented in this paper has been limited by the small number of studies conducted relating to responsible use of technology and Cyberbullying. The future research direction is to focus on what can be done to protect against Cyberbullying and what protection steps can be implemented to protect young people.

#### References

Aboujaoude, E., Savage, M. W., Starcevic, V., & Salame, W. O. (2015). Cyberbullying: Review of an Old Problem Gone Viral. *Journal of Adolescent Health*, 57(1), 10-18. doi:https://doi.org/10.1016/j.jadohealth.2015.04.011

Angus, C. (2016). *Cyberbullying of children*. NSW Parliamentary Research Service Retrieved from https://www.parliament.nsw.gov.au/researchpapers/Documents/cyberbullying-of-children/Cyberbullying%20of%20Children.pdf

- Apple. (2018). iOS 12 introduces new features to reduce interruptions and manage Screen Time. *Newsroom*. Retrieved from https://www.apple.com/au/newsroom/2018/06/ios-12-introduces-new-features-to-reduce-interruptions-and-manage-screen-time/
- Aricak, T., Siyahhan, S., Uzunhasanoglu, A., Saribeyoglu, S., Ciplak, S., Yilmaz, N., & Memmedov, C. (2008). Cyberbullying among Turkish Adolescents. *Cyberpsychology & behavior: the impact of the Internet, multimedia and virtual reality on behavior and society, 11,* 253-261. doi:10.1089/cpb.2007.0016
- Bada, M., Sasse, A. M., & Nurse, J. R. C. (2019). Cyber Security Awareness Campaigns: Why do they fail to change behaviour? *arXiv e-prints*.
- Barlett, C. P. (2015). Anonymously hurting others online: The effect of anonymity on cyberbullying frequency. *Psychology of Popular Media Culture*, 4(2), 70-79. doi:10.1037/a0034335
- Berg, C., & Breheny, S. (2014). *A social problem, not a technological problem, Bullying, cyberbullying and public policy*. Melbourne: Institute of Public Affairs Retrieved from https://ipa.org.au/wp-content/uploads/archive/submission\_V6.pdf
- Berger, K. (2007). Update on Bullying at School: Science Forgotten? *Developmental Review*, 27, 90-126. doi:10.1016/j.dr.2006.08.002
- Berkowitz, M. (2000) ITAA Report. Paper presented at the *National Conference on Cyber ethics*, Arlington, VA., USA.
- Calvete, E., Orue, I., Estévez, A., Villardón, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile. *Computers in Human Behavior*, 26, 1128-1135. doi:10.1016/j.chb.2010.03.017
- Carter, M. A. (2013). Protecting Oneself from Cyber Bullying on Social Media Sites a Study of Undergraduate Students. *Procedia Social and Behavioral Sciences*, 93, 1229-1235. doi:https://doi.org/10.1016/j.sbspro.2013.10.020
- Cole, A. (2014). *The digital world: Are our children ready?* (M.S.), Utica College, Ann Arbor. ProQuest Dissertations & Theses Global database. (1570361)Dissertations & Theses Global database. (1570361)
- Couvillon, M. A., & Ilieva, V. (2011). Recommended Practices: A Review of Schoolwide Preventative Programs and Strategies on Cyberbullying. *Preventing School Failure: Alternative Education for Children and Youth,* 55(2), 96-101. doi:10.1080/1045988X.2011.539461
- Coventry, L., Briggs, P., Blythe, J., & Tran, M. (2014). *Using behavioural insights to improve the public's use of cyber security best practices*. London, UK: Government Office for Science Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/309652/14-835-cyber-security-behavioural-insights.pdf
- Cross, D., Shaw, T., Hearn, L., Epstein, M., Monks, H., Lester, L., & Thomas, L. (2009). *Australian Covert Bullying Prevalence Study (ACBPS)*. Perth
- Crystal, J., Geide, C. A., Salpeter, J., Abight, K., & Kuzas, K. J. (2000). The concerned educator's guide to safety and cyber-ethics. *Technology & Learning*, 21(4), 24-31.

- Elci, A., & Seckin, Z. (2016). Cyberbullying Awareness for Mitigating Consequences in Higher Education. *Journal of Interpersonal Violence*, 34. doi:10.1177/0886260516646095
- eSafety Commissioner. (2020). Pressures from social media. Retrieved from https://www.esafety.gov.au/young-people/pressures-from-social-media
- Facebook. (2019). Put a Stop to Bullying. *Bullying Prevention Hub.* Retrieved from https://www.facebook.com/safety/bullying
- Facebook. (2020a). Help Centre. Retrieved from https://www.facebook.com/help
- Facebook. (2020b). Welcome to the Digital Literacy Library. Digital Literacy Library. Retrieved from https://www.facebook.com/safety/educators
- Feinberg, T., & Robey, N. (2008). Cyberbullying. *Principal Leadership (Middle School Edition)*, 9(1), 10-14.
- Ferrari, R. (2015). Writing narrative style literature reviews. *Medical Writing*, 24, 230-235. doi:10.1179/2047480615Z.000000000329
- Gonzales, R. H. (2014). *Social media as a channel and its implications on cyber bullying*. Paper presented at the DLSU Research Congress.
- Hinduja, S., & Patchin, J. (2011). Cyberbullying: A Review of the Legal Issues Facing Educators. *Preventing School Failure: Alternative Education for Children and Youth, 55,* 71-78. doi:10.1080/1045988X.2011.539433
- Hinduja, S., & Patchin, J. W. (2019). Cyberbullying Identification, Prevention, and Response. In: *Cyberbullying Research Center* (cyberbullying.org).
- Hinduja, S., & Patchin, J. W. (2009). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Thousand Oaks, CA: Sage Publications (Corwin Press).
- Hinduja, S., & Patchin, J. W. (2010). Bullying, Cyberbullying, and Suicide. *Archives of Suicide Research*, 14(3), 206-221. doi:10.1080/13811118.2010.494133
- Hinduja, S. & Patchin, J. W. (2014). Cyberbullying Identification, Prevention, and Response. *Cyberbullying Research Center* (www.cyberbullying.us).
- Hoff, D., & Mitchell, S. (2009). Cyberbullying: Causes, effects, and remedies. *Journal of Educational Administration*, 47, 652-665. doi:10.1108/09578230910981107
- Huang, Q., Inkpen, D., Zhang, J., & Van Bruwaene, D. (2018). *Cyberbullying Intervention Based on Convolutional Neural Networks*. Paper presented at the Proceedings of the First Workshop on Trolling, Aggression and Cyberbullying (TRAC-2018).
- IRIS Research. (2014). *Estimates of cyber-bullying incidents dealt with by Australian schools*. Canberra ACT 2601, Australia Retrieved from https://www.communications.gov.au/publications/estimates-cyber-bullying-incidents-dealt-australian-schools-%E2%80%93-iris-research-june-2014
- Kaltiala-Heino, R., Rimpelä, M., Marttunen, M., Rimpelä, A., & Rantanen, P. (1999). Bullying, depression, and suicidal ideation in Finnish adolescents: school survey. *BMJ (Clinical research ed.)*, 319(7206), 348-351. doi:10.1136/bmj.319.7206.348

- Kowalski, R., & Fedina, C. (2011). Cyber bullying in ADHD and Asperger Syndrome populations. *Research in Autism Spectrum Disorders RES AUTISM SPECTR DISORD*, 5, 1201-1208. doi:10.1016/j.rasd.2011.01.007
- Kowalski, R. M., Limber, S., & Agatston, P. W. (2012). *Cyberbullying: Bullying in the digital age.* Chichester, West Sussex, UK: : Wiley-Blackwell.
- Kowalski, R. M., & Limber, S. P. (2007). Electronic Bullying Among Middle School Students. *Journal of Adolescent Health*, 41(6), S22-S30. doi:10.1016/j.jadohealth.2007.08.017
- Kowalski, R. M., Limber, S. P., & Agatston, P. W. (2008). *Cyberbullying: Bullying in the Digital Age.* Malden, MA: Blackwell Publishing.
- Kowalski, R. M., Limber, S. P., & McCord, A. (2019). A developmental approach to cyberbullying: Prevalence and protective factors. *Aggression and Violent Behavior*, 45, 20-32. doi:10.1016/j.avb.2018.02.009
- Lai, L., & Turban, E. (2008). Groups Formation and Operations in the Web 2.0 Environment and Social Networks. *Group Decision and Negotiation*, 17, 387. doi:10.1007/s10726-008-9113-2
- Lee, E. B. (2017). Cyberbullying: Prevalence and predictors among African American young adults. *Journal of Black Studies*, 48(1), 57-73. doi:10.1177/0021934716678393
- Lenhart, A., Madden, M., Smith, A., Purcell, K., & Zickuhr, K. (2011). Teens, kindness and cruelty on social network sites. In (pp. pp. 1–86). Washington, DC: Pew Research Center's Internet & American Life Project.
- Li, C. (2010). Groundswell. Winning in a World Transformed by Social Technologies. *Strategic Direction*, 26. doi:10.1108/sd.2010.05626hae.002
- Livingstone, S., Haddon, L., Goerzig, A., & Ólafsson, K. (2011). Risks and Safety on the Internet: The Perspective of European Children: Full Findings and Policy Implications from the EU Kids Online Survey of 9–16 Year Olds and Their Parents in 25 Countries. In. London, UK: EU Kids Online. London School of Economics & Political Science.
- Lu, H.-P., & Hsiao, K.-L. (2010). The influence of extro/introversion on the intention to pay for social networking sites. *Information & Management*, 47, 150-157. doi:10.1016/j.im.2010.01.003
- Lund, E. M., & Ross, S. W. (2017). Bullying Perpetration, Victimization, and Demographic Differences in College Students: A Review of the Literature. *Trauma, Violence, & Abuse,* 18(3), 348-360. doi:10.1177/1524838015620818
- Myers, C.-A., & Cowie, H. (2019). Cyberbullying across the Lifespan of Education: Issues and Interventions from School to University. *International journal of environmental research and public health*, 16(7), 1217. doi:10.3390/ijerph16071217
- Niyazi, Ö., Celal Teyyar, U., & Kadir, B. (2011). Computer Teachers' Attitudes toward Ethical Use of Computers in Elementary Schools. *International Journal of Cyber Ethics in Education* (*IJCEE*), 1(2), 15-24. doi:10.4018/ijcee.2011040102
- Norton. (2020). Norton AntiVirus Plus, Parental control. *Nortan products & services*. Retrieved from https://au.norton.com/

- Notar, C. E., Padgett, S., & Roden, J. (2013). Cyberbullying: Resources for Intervention and Prevention. *Universal Journal of Educational Research*, 1(3), 133-145.
- Olweus, D. (2013). School Bullying: Development and Some Important Challenges. *Annual Review of Clinical Psychology*, 9(1), 751-780. doi:10.1146/annurev-clinpsy-050212-185516
- Perren, S., Corcoran, L., Cowie, H., Dehue, F., Garcia, D. J., Mc Guckin, C., ... Völlink, T. (2012). Tackling Cyberbullying: Review of Empirical Evidence Regarding Successful Responses by Students, Parents, and Schools. *International Journal of Conflict and Violence*, 6, 283. doi:10.4119/ijcv-2919
- Raskauskas, J., & Huynh, A. (2015). The Process of Coping with Cyberbullying: A Systematic Review. *Aggression and Violent Behavior*, 23. doi:10.1016/j.avb.2015.05.019
- Sabella, R., Patchin, J., & Hinduja, S. (2013). Review: Cyberbullying myths and realities. *Computers in Human Behavior*, 29, 2703-2711. doi:10.1016/j.chb.2013.06.040
- Sahin, M. (2012). The relationship between the cyberbullying/cybervictmization and loneliness among adolescents. *Children and Youth Services Review, 34,* 834–837. doi:10.1016/j.childyouth.2012.01.010
- Scheff, S. (2016). 7 Apps for national bulling prevention month. Retrieved from http://www.suescheffblog.com/7-apps-national-bullying-prevention-month/
- Shariff, S. (2005). Cyber-dilemmas in the new millennium: School obligations to provide student safety in a virtual school environment. *McGill Journal of Education*, 40(3).
- Shariff, S., & Johnny, L. (2007). Cyber-libel and cyber bullying: Can schools protect student reputations and free expression in virtual environments? *Education Law Journal*, 16, 307-342.
- Slonje, R., Smith, P. K., & Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior*, 29(1), 26-32. doi:https://doi.org/10.1016/j.chb.2012.05.024
- Smith, J. A., & Yoon, J. (2012). Cyberbullying presence, extent, & forms in a midwestern post-secondary institution. *Proceedings of the Information Systems Education Conference, ISECON*, 29.
- Smith, P., Steffgen, G., & Sittichai, R. (2013). The nature of cyberbullying, and an international network. In P. Smith & G. Steffgen (Eds.), *Cyberbullying through the new media: Findings from an international network* (pp. 3-19). London: Psychology Press.
- Smith, P., Thompson, F., Craig, W., Hong, I., Slee, P., Sullivan, K., & Green, V. (2016). Actions to prevent bullying in western countries. In P. Smith, K. Kwak, & Y. Toda (Eds.), *School Bullying in Different Cultures: Eastern and Western Perspectives* (pp. 301-333). Cambridge: Cambridge University Press. doi:10.1017/CBO9781139410878.018
- Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry*, 49(4), 376-385. doi:10.1111/j.1469-7610.2007.01846.x
- So, A., & Lenarcic, J. (2014). *Cross-cultural perspectives on cyberbullying through an ethical lens* (pending publication).

- Sourander, A., Brunstein Klomek, A., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., . . . . . . . . . . . Helenius, H. (2010). Psychosocial Risk Factors Associated With Cyberbullying Among Adolescents: A Population-Based Study. *Archives of general psychiatry*, 67, 720-728. doi:10.1001/archgenpsychiatry.2010.79
- Spears, B., Keeley, M., Bates, S., & Katz, I. (2014). Research on youth exposure to, and management of, cyberbullying incidents in Australia: Part A Literature review on the estimated prevalence of cyberbullying involving Australian minors (SPRC Report 9/2014). In. Sydney: Social Policy Research Centre, UNSW Australia.
- Stacey, E. (2009). Research into cyberbullying: Student perspectives on cybersafe learning environments. *Informatics in Education-An International Journal*, 8(1), 115-130.
- Twitter. (2019). Everything you need to know so you can use Twitter like a pro. *Help Center*. Retrieved from https://help.twitter.com/en
- Tynes, B. M., Rose, C. A., & Williams, D. R. (2010). The Development and Validation of the Online Victimization Scale for Adolescents. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 4(2), 1-15.
- United Nations Children's Fund. (2017). *The State of The World's Children 2017, Children in a Digital World.* New York, USA: Division of Communication Retrieved from https://www.unicef.org/publications/files/SOWC 2017 ENG WEB.pdf
- Välimäki, M., Almeida, A., Cross, D., Fandrem, H., O'Moore, M., Berne, S., . . . Sygkollitou, E. (2013). Guidelines for preventing cyber-bullying in the school environment: a review and recommendations In *Cyberbullying: Coping with negative and enhancing positive uses of new technologies, in relationships in educational settings.* Retrieved from https://sites.google.com/site/costis0801/guideline
- Walrave, M., & Heirman, W. (2011). Cyberbullying: Predicting Victimisation and Perpetration. *Children & Society*, 25(1), 59-72. doi:10.1111/j.1099-0860.2009.00260.x
- Willard, N. E. (2002). *Computer Ethics, Etiquette, and Safety for the 21St-Century Student*: International Society for Technology in Education.
- Williams, K. R., & Guerra, N. G. (2007). Prevalence and Predictors of Internet Bullying. *Journal of Adolescent Health*, 41(6), S14-S21. doi:10.1016/j.jadohealth.2007.08.018
- Wong-Lo, M., & Bullock, L. (2011). Digital Aggression: Cyberworld Meets School Bullies. *Preventing School Failure: Alternative Education for Children and Youth*, 55, 64-70. doi:10.1080/1045988X.2011.539429
- Yamano, P. H. (2004). *Cyberethics in the elementary classroom: Teaching the responsible use of technology*. (Ph.D. thesis), Pepperdine University, Retrieved from https://www.learntechlib.org/p/119082
- Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the Overlap in Internet Harassment and School Bullying: Implications for School Intervention. *Journal of Adolescent Health*, 41(6), S42-S50. doi:10.1016/j.jadohealth.2007.09.004

**Copyright:** © 2020 Kaluarachchi, Warren & Jiang. This is an open-access article distributed under the terms of the <u>Creative Commons Attribution-NonCommercial 3.0 Australia License</u>, which permits non-commercial use, distribution, and reproduction in any medium, provided the original author and AJIS are credited.

doi: https://doi.org/10.3127/ajis.v24i0.2791

