

Dissertation

The Nature and Impact of Cyberbullying among South African Youth: An Explanatory Analysis

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1 Abstract

Cyberbullying, bullying via electronic media and communication, is on the increase. It has been thrust to the forefront of the public agenda, with concerns about the psychological and health impacts resulting from online victimisation. There is limited research on the phenomenon and the extent of the problem is unknown in South Africa. Furthermore, inconsistencies between the various definitions has added to our understanding of the problem, and factors influencing cyberbullying are not comprehensively known. This dissertation proposes an alternate definition which does not rely upon repetition as a major characteristic, and investigates the extent of which guardianship and self-control influence online behaviours.

3033 adolescent children aged 11 to 17 from seventeen South African schools responded to our survey examining the nature, extent and impacts of cyberbullying. Incidents of cyberbullying were examined in relation to gender, age and school grade, internet usage, traditional bullying factors, and economic factors. There was a significant incidence of cyberbullying including in primary schools (Grades 6 and 7), and among those pupils exhibiting traditional bullying victim and perpetrator attributes. In contradiction to current research, there were correlations to gender with girls reporting significantly more incidents of cyber victimisation. Cyberbullying impacts were perceived as negative, eliciting feels of anger, fear and depression. Where significant, the results from 2014 were compared to the 2012 results. The results also indicate that in online bullying, repetition was not a factor, and victims reported no less impact from a single incident compared to repetitive incidents.

Keywords: cyberbullying; bullying; victim; adolescences; pupils; school; South Africa.

2 Introduction

2.1 Background

As internet connection speeds and the availability of affordable mobile technology increases, so too does the ubiquity of the internet. Never before has information and education been so readily available, and a wealth of opportunities for learning, exploration, and social and public engagement abound (Burton & Mutongwizo, 2009). A broadband connection in the home is now seen as a valuable educational resource, vital to a child's academic development. These benefits are however not without their dangers and there are inherent risks. These risks range from *exposure to inappropriate content*, to *undesirable contact with strangers*, to *inappropriate conduct perpetrated by children*, including the emergent phenomenon of cyberbullying (e.g. Hinduja and Patchin, 2008; Mitchell, 2010; Wolak, Mitchell and Finkelhor, 2006; Ybarra, Diener-West and Leaf, 2007).

Since traditional bullying was first described in the 1970s (Heinemann, 1972), a rigorous body of scientific research has been gathered, and it can be described as a psychosocial problem involving intentional, repetitive harm (Casas, Del Rey & Ortega-Ruiz, 2012; Rigby & Smith, 2011). The level of online risk facing children and the harassment that takes place via electronic media has to a large extent, however, been neglected (Tokunaga, 2010; Hinduja & Patchin, 2008), and cyberbullying research is in its infancy (Smith et al., 2008; Burton & Mutongwizo, 2009; von Solms & de Lange, 2011). Although this is the case, all the studies are in agreement that the number of children being cyberbullied is on the rise and constitutes a significant minority. Of particular concern is the paucity of local research, as is highlighted by Badenhorst (2011) who made the following observation:

"There is limited research on cyberbullying and sexting in South Africa. As such, it is unclear how many children are involved in these practices. The number of children subjected to cyberbullying is also unknown" (p. 5)

In addition, concerns have been raised as to the adequacy of current cyberbullying definitions (Bauman, 2013; Slonje et al., 2013; Tokunaga, 2010), which are exacerbated by the tendency to classify behaviours based on their impact on the victim (Kernaghan & Elwood, 2013). This has resulted in varying results, and a distinct lack of conceptual clarity (Tokunaga, 2010).

2.2 Research question and objectives

There are three main objectives to this research, the first is to conduct an exploratory study into the nature and impact of cyberbullying on South African youth. Owing to the distinct lack of local research, and to the rapid development of technology, it is important to describe the phenomenon from within the local context. The results will be compared to the first set of data collected in 2012 (n=1258), which formed part of the author's honours dissertation. The analysis of the two sets of data will be used to affirm current understandings, and to track potential trends and shifts in the phenomenon. The second objective will be to address some of the fundamental concerns associated with the current lack of a standardised definition for Cyberbullying. The literature review discusses important considerations, and proposes an adjusted definition which introduces a continuum of behaviours by which incidents can be classified. In particular, the transferability of *repetition* as a main characteristic from the traditional bullying definition to the cyberbullying definition is questioned. This new definition reduces repetition, along with the impact on the victim, to a subsidiary of the phenomenon. Reasoning for this is attributed to the nature of electronic communication where, owing to a seemingly limitless audience, the impact can be greatly enhanced. It is for this reason that the perceived impact of cyberbullying is compared to the rate of incidents, in order to establish the validity of the claim. The third and final objective, extends Kernaghan and Elwood's model of cyberbullying characteristics, which is itself an extension of Goffman's conceptual framework of Presentation of Self. Electronic communication is introduced as a role, raising it to the position of actor within the environment. Equally, the role of active guardianship is included and mapped to the model. The lack of active guardianship is a common thread within a number of theories and this study seeks to investigate the relationship between active guardianship, self-control and cyberbullying incidents.

It is from these three main objectives that a broad title and initial research question were developed and is defined as follows: *What is the nature, and potential root causes of cyberbullying, and what are its impact on South African Youth?* The study will be both descriptive and explanatory in nature, and looks to produce a concrete understanding of the phenomenon, while making a unique contribution in developing a more refined definition and enhancing a framework for understanding.

3 Literature Review

The literature review contains a comprehensive analysis of current cyberbullying research; synthesising what is already known, analysing areas of contention, and uncovering gaps and areas where research is required. This section of the dissertation seeks to provide a solid theoretical

foundation from which to better understand the problem and, in so doing, address issues and provide justification for the proposed study and methodology.

It is important to note here, that the IS “literature universe” is comprised of diverse and interdisciplinary work (Ellis & Levy, 2006). This section draws on IS literature, as well as work in related fields of psychology, criminology and behavioural science.

3.1.1 The literature review process

In order to develop an effective foundation of literature for the proposed research, the review framework proposed by Ellis and Levy (2006) was adopted. The review process itself utilised a systematic, concept-centric approach, which employed elements of the chronological and author-centric approaches where necessary. This was then compiled into a comprehensive summary of the body of knowledge, providing historical background and context.

Sequential steps of drawing from quality input, thorough processing and coherent output, were followed. In order to identify quality literature, peer-reviewed articles, from ranked journals were identified. A combination of keyword, backward (reviewing the references of articles), and forward (review additional articles that have cited the article) searches were used in an iterative process to identify articles. As quality literature was identified and reviewed, the keyword searches were refined further. This funnelled approach was applied until familiar arguments, methodologies, findings, authors, and studies started to emerge. Once no new concepts were surfacing, the process was then considered near to completion.

3.2 Background

Cyberbullying has certainly shot to the forefront of public concerns, as a result of a number of disturbing reports where victims have resorted to suicide in response to repetitive and malicious online harassment. Although this represents the worst-case scenario, the apparent psychological and health impacts from so called *minor* incidents, are equally as troubling (Burton & Mutongwizo, 2009; Tokunaga, 2010). The statistics reporting incidents of cyber harassment among our youth is alarming, and requires the attention of researchers and policy makers.

Below are three noteworthy cases, which have received particular media attention:

- Megan Meier, a 13-year-old girl, committed suicide in October 2006, after she was allegedly tormented by the mother of a former friend. Drew Lori, the mother and cyberbully, created a false identity on MySpace and used it to correspond with and glean information from Megan. This information was later used to harass and humiliate Megan for spreading rumours about her daughter (ABC News, 2007).
- Jamey Rodemeyer, a 14 year old gay teenager, who reportedly endured chronic harassment, which led to his suicide outside his home in Buffalo on 11 September 2011 (Reuters, 2011).
- Amanda Todd, a 15 year old Canadian youth, committed suicide in her home on 10 October 2012, reportedly as a result of relentless cyberbullying and online harassment. This case was particularly poignant, as two months prior to her death, she posted a nine-minute YouTube clip, entitled ' "My Story: Struggling, bullying, suicide and self-harm"', in which she expressed her anguish and distress. Amanda made an error in judgement, and allowed a compromising webcam picture of herself to be taken by an anonymous user. This image was subsequently used as the profile picture on a false Facebook page, which sparked a vicious cycle of verbal and online abuse. This abuse transcended the boundaries of her school, and followed her home, and even to schools as she tried to escape the problem.

These are, unfortunately, not isolated cases, and there are additional concerns owing to the apparent psychological and health impacts (Burton & Mutongwizo, 2009). Patchin and Hinduja (2008) describe cyberbullying as a by-product of the unfortunate combination of teenage aggression and the ubiquitous access to electronic communication. The statistics reporting incidents of cyber harassment among our youth is alarming, and requires the attention of researchers and policy makers (Burton & Mutongwizo, 2009).

3.3 Cyberbullying definitions and related issues

As one might expect, research has established a significant link between pupils involved in traditional school-yard bullying and involvement in cyberbullying. These findings have been replicated across all the major empirical contributions (Bauman, 2013; Smith, 2012; Tokunaga, 2010), and explains the logical step researchers have taken in deriving a cyberbullying definition from the well-established traditional bullying definitions. Conceptually these definitions contain the three main attributes: the intention to do harm (aggression), repetition, and the imbalance of power (Besley, 2012; Patchin & Hinduja, 2006; Šléglová & Černá, 2011; Smith, Mahdavi, Carvalho, Fisher, Russell & Tippett, 2008). Table 1 contains a chronological list of some of the more widely cited definitions, highlighting the

progression in the last decade. These changes can be attributed to the rapid advancement in information technologies, and to the uncovering of new qualities of the phenomenon in research.

New technologies, coupled with ubiquitous internet access, have proven to be a particular challenge. This is evident in the initial stages, where researchers differentiated between computer-based bullying (e-mailing and, later, social media) and mobile bullying (mobile phone calls and text messaging). With the advent of the smart phone (an advanced mobile phone capable of accessing the internet), however, these differences have all but been negated, and a coverall classification has been adopted (Slonje, Smith & Frisén, 2013). Slonje et al. (2013) further add that it is now more useful to distinguish between and categorise the different types of platforms (i.e. Instant messaging, SMS, social media, e-mail, blogging, video, online gaming, etc.). This allows researchers to identify high-risk environments, and in turn generalise high-risk behaviours.

Table 1 - Cyberbullying definition progression

Study	Conceptual definition of cyberbullying
Finkelhor et al. (2000)	<i>Online harassment: Threats or other offensive behaviour (not sexual solicitation) sent online to the youth or posted online about the youth for others to see</i>
Patchin and Hinduja (2006)	<i>Wilful and repeated harm inflicted through the medium of electronic text (p. 152)</i>
Willard (2007)	<i>Sending or posting harmful or cruel texts or images using the internet or other digital communication devices (p. 1)</i>
Li (2008)	<i>Bullying via electronic communication tools such as e-mail, cell phone, personal digital assistant (PDA), instant messaging, at the World Wide Web (p. 224)</i>
Smith et al. (2008)	<i>An aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly or over time against a victim who cannot easily defend him or herself (p. 376)</i>
Besley (2009) (as cited by Tokunaga, 2010)	<i>The use of information and communication technologies to support deliberate, repeated, and hostile behaviour by an individual or group, that is intended to harm others</i>
Price & Dalgleish (2010)	<i>Cyberbullying is the collective label used to define forms of bullying that use electronic means such as the internet and mobile phones to aggressively and intentionally harm someone. Like “traditional” bullying, cyberbullying typically involves repeated behaviour and a power imbalance between aggressor and victim. (p. 51)</i>

The express purpose of research is to build on extant literature, by investigating new elements or unearthing new aspects of the phenomenon that are as yet undiscovered (Bauman, 2013). A precise and widely accepted definition, which clearly conveys and outlines the scope of the phenomenon, is critical to advancing scientific understanding and knowledge. It is upon this cornerstone that researchers are able to accumulate conceptual and theoretical work, to develop reliable survey instruments, and in so-doing, forming a coherent body of knowledge. In the absence of a standardised definition, it is difficult to generalise findings and to make cross-study comparisons. What we are left with is a collection of interesting studies that are loosely linked by a common interest (Bauman, 2013).

Although the various definitions offered in literature are similar, a precise and widely accepted definition continues to allude academics (Burton & Mutongwizo, 2009; Šléglová & Černá, 2011; Slonje et al., 2013; Tokunaga, 2010). The concern, shared by a number of authors, is that the three attributes, which have been borrowed from traditional bullying, do not adequately describe the phenomenon (Bauman, 2013; Slonje et al., 2013; Tokunaga, 2010).

Consider the primary attribute, the intent of the perpetrator. Bauman (2013) posits that it is very difficult to accurately determine the intent of a person, but that we can infer intent based on either the outcome of his/her actions or, the circumstances from which the act was initiated. In a traditional bullying scenario, intent is clearly identifiable (Slonje et al., 2013; Bauman, Underwood & Card, 2013), particularly when combined with the attributes of repetitiveness and power imbalance. With information technology, however, intent can easily be misinterpreted. Poor attempts at humour, which are devoid of immediate feedback and paralinguistic cues, can be misunderstood and can be a source of dismay (Baldasare, Bauman, Goldman & Robie, 2012). The nett result is that users who post comments or images, which are intended to be funny, can cause just as much damage and distress as those which intend harm.

Similarly, if we consider repetition within the technology environment, the ability to share messages (copy and paste) thereby drawing in a wider audience, places doubt on the transferability of this attribute. It could be argued that each time the message is shared, this constitutes repetition, and therefore implies that a single event could constitute an incident of cyberbullying. The difficulty with this reasoning is that the repetitive component of the act is in the outcome and impact on the victim, and not the action of the perpetrator. To date, as can be observed from table 1, many of the definitions have been written from the perspective of the perpetrator.

Additionally, Tokunaga (2010) highlights the lack of the word *repeatedly* in a number of definitions, and suggests that these inconsistencies have resulted in researchers studying vastly different phenomenon under the same umbrella term. He further posits that this lack of agreement has placed the reliability of results under threat. Slonje *et al* (2013) elaborate, and suggest that the conceptual difficulties in the attributes of repetition and intent are still under debate.

The final attribute of power imbalance, if considered within the traditional bullying environment, is easily identifiable. A power imbalance could constitute physical strength, social status (popularity), monetary wealth, or any circumstance where the perpetrator is able to abuse a position of power. This translates into the information technology environment, where a power imbalance could be technical proficiency, anonymity or social status. However, if we once again consider the ability to share information, no perceivable imbalance may be in place. An example of this is, if a seemingly harmless comment is misunderstood and then shared with a wider audience, the victim is powerless to defend themselves and the comments cannot be removed from the site.

These concerns regarding the transferability and adequacy of adopting the attributes of traditional bullying places existing results in question (Smith *et al.* 2013; Tokunaga, 2010). This challenge constitutes a significant gap in literature. Tokunaga argues that an integrated definition is critical for operational and conceptual clarity (Tokunaga, 2010).

Burton and Mutongwizo (2009) highlight that there has been no consistent use of the cyberbullying term across literature and that the level at which cyberbullying constitutes cyberaggression is contested. They further posit that, although there are similarities between traditional bullying and cyberbullying, greater levels of nuance and differentiation between the various types of online aggression need to be explored. Based on their observations, they have argued that cyberaggression and cyberviolence are a subset of cyberbullying, but they did not clarify the distinguishing attributes.

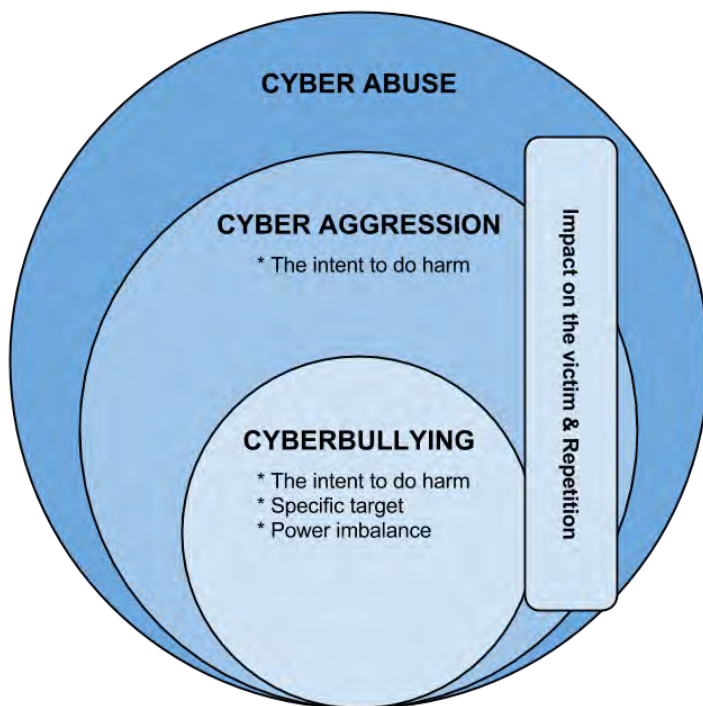
Smith et al. (2013) propose that it is helpful to distinguish between cyberbullying and cyberaggression. They present an alternative view, which has received support from Bauman (2013), and it proposes that, as traditional bullying is a subset of aggression, so too should cyberbullying be seen as subset of cyberaggression. They define cyberaggression as “*an intentional harmful behaviour against another person using electronic technology (computers, phones, etc.) for communication (text, images, etc.)*” (p. 26). They further posit that cyberbullying should contain the following three attributes: intent to do harm (common to cyberaggression), the existence of a specific target, and the imbalance of power. The third and final attribute should be seen as a defining characteristic. Repetition and the impact on the victim should be viewed as subsidiary criteria and, if present, they support a stronger case. In reference to this classification, Bauman (2013), suggests that the focus of research should be on cyberaggression rather than on cyberbullying.

Although viewing cyberbullying as a subset of cyberaggression provides greater clarity, the concerns raised surrounding unintentional behaviours with hurtful and damaging outcomes, is not addressed. This lack of distinction will continue to remain a stumbling block to both researchers and decision makers, and further clarity is required. Reasoning for this is that in a real-world scenario, the real-time action of a perpetrator is hidden, while the impact on the victim is evident, making it very challenging to differentiate.

Cyberbullying is not the only area of IS research that has been plagued with concerns regarding intent. The field of Behavioural Information Security has similarly expressed concern and suggests that a distinction needs to be drawn between insider deviant behaviour and insider misbehaviour (Crossler, Johnston, Lowry, Warkentin, & Baskerville, 2013). It is generally accepted that, despite significant advances in protective technologies, organisational procedures and policies, people represent the greatest vulnerability in defence against digital threats (Hu et al., 2012; Warkentin & Willison, 2009). Insider misbehaviour, which can include weak passwords, inadvertent distribution of confidential data or clicking on phishing links, can cause severe security breaches (Baker et al., 2010; Richardson, 2011). Crossler et al (2013) argues that by mixing the two categories it places the credibility of research results in doubt, and limits the effectiveness of policy applicability and suggested remedies. They add that although the causes may differ, the impact is just as damaging. They further posit that a comprehensive information security program must investigate the full range of behaviours if it is to be effective. Warkentin and Willison (2013), suggest a continuum of behaviours ranging from careless and unintentional, volitional (but not malicious), to malicious acts.

This direction of research resonates with current cyberbullying research, and can be drawn upon for greater operational and conceptual clarity. It is my proposition, therefore, that behaviour that is careless and unintentional, but which leads directly or indirectly to harm or dismay being inflicted on a recipient, should be seen as electronic communication misbehaviour or cyber-abuse. Behaviour which is malicious, but which is not directed at a specific target nor where there is a power imbalance present, is viewed as cyberaggression, and is a subset of cyber-abuse. Finally, behaviour that is malicious, is targeted and where a power imbalance is present, is viewed as cyberbullying, and is a subset of cyberaggression. Attributes of repetition and the impact on the recipient are seen as subsidiary to all of these behaviours. Figure 1 provides a diagrammatic representation of this classification.

Figure 1 - Continuum of Cyber Behaviours



This proposed model of classification, which is rooted in Behavioural Information Security theory, draws on Willison and Warkentin's (2013) continuum of intended behaviours. This enables researchers to capture all actions which, based on the impact on the victim, would have been classified as cyberbullying. They are able to filter these behaviours and investigate the related, but distinctly different ranges of behaviours. This model additionally lays the ground-work for target work into the causes and remedies.

For the purpose of this dissertation an adapted variation of Tokunaga's (p. 278, 2010) definition, which employs a victim-orientated perspective, is adopted:

“Cyberbullying is any behaviour performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort against a specific target, who cannot easily defend him or herself.”

Tokunaga’s addendum similarly agrees with the intended research and has been included:

“In cyberbullying experiences, the identity of the bully may or may not be known. Cyberbullying can occur through electronically-mediated communication at school; however, cyberbullying behaviour commonly occurs outside of school as well.” (p. 278)

A further conceptual point of clarity is the distinction between direct cyberbullying and indirect cyberbullying (or cyberbullying by proxy). Cyberbullying by proxy represents a situation where the instigator manipulates a third party into doing their *dirty* work (Šléglová & Černá, 2011). Very often they find themselves unwitting accomplices and, when their role in the incident has been discovered, can also be emotionally and psychologically affected. Cyberbullying by proxy presents a potentially risky situation, as this is often where adults are involved in the harassment.

3.4 Types of cyberbullying

There have been a number of studies which have investigated the different types of cyberbullying. Rivers and Noret (2010) suggested ten categories, viz: threat of physical violence, abusive or hate-related, name calling, death threats, ending of platonic relationships, sexual acts, demands, threats to damage existing relationships, threats to home/family, and menacing chain messages. Huang and Chou (2010) investigated the types in relation to their role as a victim, perpetrator or bystander, finding harassment and threats to be the most common form of cyberbullying among victims and bullies, and humour as the most frequent among bystanders. Although each of these studies has provided alternative views of cyberbullying types, Willard’s list of cyberbullying types is the most comprehensive and the most cited (Burton & Mutongwizo, 2009; Li, 2006 & 2010; Mark & Ratliffe, 2008; Tokunaga, 2010). Willard describes seven categories, viz:

- *Harassment* is most frequently used by cyberbullies, and involves the repeatedly and persistent sending of rude, threatening, or insulting material at an intended target. Although this primarily involves text, it may include video and images.
- *Flaming* describes a heated online fight, which involves hostile and often vulgar messages being exchanged. Although these incidents are often brief, they can spiral into online arguments which draw in a wider audience.

- *Denigration* involves the posting of disparaging comments or images that attack a person's character or reputation. This includes the posting or sending of images that have edited to portray the intended victim in a harmful or sexually demeaning way (Burton & Mutongwizo, 2009).
- *Impersonation or identity theft* occurs when an online account is hacked, or a false persona is created, for the purpose of assuming the victim's identity. The perpetrator then spreads damaging information in a bid to discredit the victim.
- *Outing* refers to the act of extracting truthful information about a victim, via devious measures, and then sharing this online to cause distress.
- *Exclusion* is an age-old traditional bullying practice of intentionally rejecting or isolating the victim from the peer group.
- *Cyber-stalking* refers to unwanted and obsessive attention by an individual online. There are also several reported cases where cyber-stalking has shifted from the internet into real life.
- A final category, which is independent of Willard's original list, is the act of *trolling*. Essentially it refers to the behaviour of searching the internet for the express purpose of unleashing a sarcastic and cynical remarks on an unsuspecting user.

3.5 Prior empirical research

Although the level of risk facing children online is of global concern, the harassment that takes place via electronic media has, to a large extent, been neglected (Tokunaga, 2010; Hinduja & Patchin, 2008), and cyberbullying research is in its infancy (Smith et al., 2008; Burton & Mutongwizo, 2009; von Solms & de Lange, 2011). Reasoning for this can be attributed to the rapid adoption of smartphones, the acceleration of broadband penetration rates, and the general speed at which new technologies are being developed. Hinduja and Patchin (2008) posit that further justification can be attributed to the intangible and non-corporeal nature of the phenomenon, which makes it difficult to observe and study.

Owing to the early stages of cyberbullying research, Tokunaga (2010) argues that it is necessary to adopt an exploratory approach. He further posits that the scope of the phenomenon is as yet unknown, and that we should rely on surveying to investigate its extent and nature. To date the majority of the significant empirical contributions have emerged from first world countries, with varying results. These variations can be attributed to a number of factors: the differing ages and demographic make-up of the samples, the manner in which cyberbullying is defined and measured, the manner in which the data was collected, and the time period specified (Smith et al., 2008; Walker, Craven and Tokunga, 2013)

Despite these variable results, meta-synthetic conclusions and comparisons can certainly be drawn from data. Patchin and Hinduja (2012), compiled 27 peer-reviewed studies and compared the rates of victimisation and offence. They found that victimisation rates ranged from 5.5% to 72%, with an average of 24.4%, while rates of perpetration ranged from 3% to 44.1%, with an average of 18% (p. 17). These particular studies are not unique in their findings and, on average, approximately 20% - 40% of all participants have been victimised by a cyberbully (Burton & Mutongwizo, 2009; Keith & Martin, 2005; Li, 2006 & 2008; Hinduja & Patchin, 2006 & 2008; Ybarra & Mitchell, 2008; von Solms & de Lange, 2011). Inflated rates could be the upshot of definitional inconsistencies, resulting cyber-misbehaviours being recorded as acts of cyberbullying (Juvoven & Gross, 2008). In contrast, a number of studies have purposefully only evaluated a single dimension of the phenomenon, leading to relatively deflated figures (Ybarra & Mitchell, 2008). Although this is the case, all of the studies are in agreement that the number of children being cyberbullied is on the rise and constitutes a significant minority.

3.5.1 South African context

It must be noted that, although the vast majority of South Africans do not have access to running water and electricity, they do have access to cell phone technology. This combined with more affordable broadband prices, lends weight to the argument that, although we lag behind the rest of world, the risk is similar to that evident in the US and Europe. Fine (as cited by Burton & Mutongwizo, 2009) extends this thinking, by positing that South Africa, despite limitations to penetration, has experienced a rapid uptake of electronic media. This, coupled with the convergence of voice and data services, and the shift to web 2.0 technologies, has created a fertile breeding ground for cyber violence, multiplying the risk exponentially.

In addition, intended as a top-end communications device, the smart phone is now a standard offering with most pre-paid contracts in South Africa. The standard cell phone has now been relegated to the lower end of the market. All of these new smart phones typically include functionality that enable the user to access the internet, capture and display images and video, and can identify their GPS (Global Positioning System) location. Children are now able to communicate in ways that are completely foreign to both parents and educators. This can make it incredibly difficult to understand the nature of the issues, as well as to do something constructive about them. (Keith & Martin, 2005)

Although there is a raft of international empirical research, the same cannot be said for South Africa (Badenhorst, 2011) and, to date, there are only two major quantitative studies (Maša & Leoschut, 2012). Although an argument could be made for the inclusion of several other smaller studies, they have either not yet been peer reviewed or they are not rigorous enough to be included in this review.

The first was a pilot study conducted by Burton and Mutongwizo (2009) for the South African Centre for Justice and Crime Prevention (CJCP), and represents the most comprehensive study yet. The dissertation reviews current literature and defines the cyberbullying phenomenon within the South African context. The sample was composed of 1726 young people between the ages of 12 to 24, and provides a descriptive view of their internet usage and the prevalence of cyberbullying. Their findings reveal the extent to which electronic media has permeated the lives of our youth, and in particular cell phone ownership (92% owned a cell phone & 48% of those cell phone had internet access). The text further establishes that at the time of the study, most electronic harassment occurred via voice calls (18%) and text messages (SMSs; 17%).

The second study was part of a master's thesis conducted by De Lange and von Solms (2011) at the Nelson Mandela Metropolitan University in the Eastern Cape of South Africa. The study surveyed 1594 children from two different schools. The purpose of which was to investigate the general internet usage of South African children and their preferred online activities. A cross study comparison with Burton and Mutongwizo (2009) has proven difficult owing to the differing objectives. De Lange and von Solms (2011) reported that 90% of children use social networks, and that MXit and Facebook were the favourite (67% accessing on a daily basis).

International research states that cyberbullying constitutes a significant minority. This is certainly reflected in the small handful of studies which have been conducted in South Africa thus far.

3.6 Key differences between traditional bullying and cyberbullying

Although traditional bullying and cyberbullying share a number of characteristics, there are also a number of significant differences (Burton & Mutongwizo, 2009; Hinduja & Patchin, 2008; Tokunaga, 2010). These differences can be attributed to the inherent qualities of electronic communication (Tokunaga, 2010).

3.6.1 Anonymity

In traditional bullying, the identity of the perpetrator is known to the victim, however in cyberbullying this may not be the case. Bullies can, through assumed identities and falsified accounts, create a web of anonymity that can make it possible to avoid detection and they therefore feel liberated from normative social constraints. This false sense of security empowers the bully, and they may be tempted to say and do things that they would not normally do in public. Researchers are in agreement that this perceived invisibility constitutes a power imbalance (Badenhorst, 2011; Burton & Mutongwizo, 2009; Hinduja & Patchin, 2008; Keith & Martin, 2005; Li, 2008; Mark & Ratliffe, 2008; Smith et al. 2008).

Literature reports that in 40% to 50% of incidents, the identity of the cyberbully is known to the victim (Kowalski, Limber & Agatston, 2008).

3.6.2 Accessibility

A further delineating difference is the ability of the perpetrator to reach well beyond physical boundaries to inflict harm (Willard, 2007; Li, 2006 & 2007; Hinduja & Patchin, 2008; Smith et al, 2008). In the past, home was a safe-haven from school-yard issues, but now the perpetrator is able to send disparaging remarks at any time, both day and night (Hinduja & Patchin, 2006; Davide-Ferdon & Hertz, 2007). Researchers have indicated that this relentless onslaught may possibly result in even greater damage when compared with traditional bullying (Hinduja & Patchin, 2008; Tokunaga, 2010).

A further danger is the ability of a cyberbully to involve a wider audience. Harmful message and images can be quickly and easily spread, increasing the victims torment (Smith et al, 2013).

3.6.3 Lack of feedback

The lack of direct and immediate feedback, or the disinhibiting effect of text-based communication, accounts for another key difference between traditional school-yard bullying and cyberbullying. Without immediate feedback, which reveals the victim's reaction to a hurtful message, the cyberbully may continue to taunt and tease relentlessly without fully appreciating the impact of his/her actions. The inherent disinhibitive nature of the online environment results in perpetrators feeling less remorse or empathy for their victims (Slonje & Smith, 2008). Further to this, a perpetrator may send a message that is intended to be a joke, which is misinterpreted by the victim, and ends up causing harm. Many cyberbullies are often surprised by the devastating results of their actions, and they express regret and remorse. Whether the action is unintended or it is the express purpose of the bully to be vicious and cruel, the outcome is the same.

3.6.4 Punitive fear

In traditional bullying, incidents can go unreported because victims fear retaliatory acts, but in cyberbullying a startling number (58% based on Tokunaga, 2010) of victims refrain from reporting incidents because they fear that internet and phone privileges may be revoked (Kowlaski et al., 2008; Mark & Ratliffe, 2008; Tokunaga, 2010). Cyber-victims fear that their internet and phone privileges will be curtailed in a bid to protect them, and they view this to be worse than the bully's taunts (Keith & Martin, 2005).

3.7 Factors influencing cyberbullying

Current literature proposes that targeted interventions and educational programmes are key to reducing the impact and incidence of cyberbullying (Badenhorst, 2011; Burton & Mutongwizo, 2009; Mitchell, 2010; Smith & Brain, 2000; Smith, Mahdavi, Carvalho, Fisher, Russell & Tippett, 2008; von Solms & de Lange, 2011). It is for this reason that the correlative relationship between age and gender, and cyberbullying incidents has been the focus of much research. A better understanding of these relationships would ensure that educational resources and initiatives are utilised effectively. A factor that has not yet received much attention in literature is the relationship between frequency of access and incidents.

3.7.1 Age/Grade group differences in cyber victim/bullying

Cyberbullying is certainly not unique to children, and there have been a small number of studies investigating its nature and impact on adults, in particular university students (Tokunaga, 2010). Primary focus, however, has been placed on surveying children under 18 years of age. Some of these studies have found that children in primary school are more likely to be involved in cyberbullying (Dehue, Bolman & Vollink, 2008), while others indicate that high school pupils have a higher rate of involvement (Perren et al., 2010; Ybarra & Mitchell, 2004).

Tokunaga (2010) argues that, despite inconsistencies in data, literature indicates a curvilinear relationship with age, with the greatest number of incidents occurring from 13 to 15 years of age (Burton & Mutongwizo, 2009; Hinduja & Patchin, 2008; Kowalski & Limber, 2007; von Solms & de Lange, 2011; Ybarra & Mitchell, 2008).

3.7.2 Gender differences in cyber victim/bullying

Burton and Mutongwizo (2009) describe the results indicating a correlative relationship between gender and being involved in cyberbullying as contradictory. While Tokunaga (2010) postulates that these apparent contradictions current literature are rather a result of inconsistencies in definitions (p. 280).

Some studies, including that of Burton and Mutongwizo (2009), indicate that there is a relationship, and that girls are more likely to be involved in cyberbullying when compared with boys (Lenhart, 2007; Ybarra, Wolak, Mitchell & Finkelhor, 2006; Kowalski & Limber, 2007). Burton and Mutongwizo (2009) reported higher incidents of cyberbullying amongst girls (33.1% compared to 29.3%), but concluded that a correlation is unlikely. Based on a review of some 13 journal articles Hinduja and Patchin, reported that 21.8% of girls and 19.5% of boys indicated that they had been victims of cyberbullying (p. 20). While 14.1% of girls and 18.5% of boys indicated that they had be perpetrators of cyberbullying (p. 20). In contrast to this, other studies have indicated that girls are more likely to report incidents (Lenhart, 2007; Kowalski & Limber, 2007; Slonje & Smith, 2008; Vandebosch & Van Cleemput, 2009), while boys are more likely to be cyberbullies (Li, 2006; Li, 2007; Slonje & Smith, 2008; Vandebosch & Van Cleemput, 2009). And yet others indicate that there are no significant differences (Li, 2006; Patchin & Hinduja, 2006; Smith et al., 2008).

Smith et al (2013) posit that despite these inconsistencies, there may be a slightly elevated rate of incidents amongst girls, as there is in relational bullying compared to physical bullying amongst boys. Reasoning for this could be attributed to the proliferation of social media platforms, which can used to extend relational bullying (Patchin & Hinduja, 2010).

Research does indicate, however, that there are differences in the type of bullying employed by different genders. Boys are more likely to resort to crude sexual remarks or threats of physical violence, while girls are more likely to call names and comment on each other's physical appearances (Beale & Hall, 2007; Burgess-Proctor, et al, 2009; Rivers & Noret, 2010).

3.7.3 Internet use and involvement as cyber bully/victim

Another factor which could potentially be a correlative relationship with cyberbullying, and which has been largely overlooked in current literature, is the relationship between addiction and cyberbullying. Literature suggest that this continuous urge to connect online can affect an individual's moods. It can also lead to social isolation and can have a destructive effect on relationships (Beard & Wolf, 2001; Del Ray, Casas, & Ortega, 2012; Ybarra & Mitchell, 2004).

3.8 Media types

New technologies, and in particular mobile devices, are being released at break-neck speed and the growth appears to be exponential. In 2009, Mutongwizo, reported that voice call and SMSs constituted the majority of media used to perpetrate cyber violence. By 2011, this shifted, and De Lange and von Solms reported that that Mxit and Facebook (social media) was the new playground for cyberbullies. The reality is that new services and devices are being released on a regular basis, making the need to identify these new threats all the more critical. Keeping up with these trends allows researchers to understand the ever-shifting nature of the phenomenon, and to suggest targeted interventions and relevant remedies that could reduce the rate of incidents and their impact.

3.9 The impact of cyberbullying

The impact cyberbullying has on a child is very similar to that experienced by one subjected to traditional bullying. Literature, however, indicates that due to the covert nature of cyberbullying, plus the reach of the perpetrator combined with the humiliation of the child across a wider audience, the reaction can be more severe (Hinduja & Patchin, 2010). Although dependent on the frequency, length and severity of the threat, children tend to demonstrate a greater internalised negative affect as a result of cyberbullying (Tokunaga, 2010).

The general impact of cyberbullying on children appears to be consistent in research, and include poor academic performance at school, decline in quality of family relationships, low self-esteem, and depression (Badenhorst, 2011; Hinduja & Patchin, 2008 & 2010; Li, 2010; Mark & Ratliffe, 2008; Ybarra & Mitchell, 2008). Occasionally, an increase in absenteeism and truancy rates were recorded because students felt that school was no longer a safe place (Beran & Li, 2005).

Although heightened levels of frustration and distress associated with cyberbullying tend to be trivialised, the psychosocial problems and affective disorders emphasise the serious nature of the phenomenon. In particular, teenage suicide and suicidal ideation continue to be a significant public health concern; studies have established a significant link between bullying and an increased risk of suicidal thoughts, as well as attempted and successful suicides (Hinduja and Patchin, 2010). Depression, low self-esteem, hopelessness and loneliness are precursors to the suicidal behaviour. Hinduja and Patchin (2010) present research indicating that cyberbully victims are 1.9 times as likely to attempt suicide than those who have not been bullied. When this increased rate is compared to victims of face-to-face bullying (“only” 1.5 times more likely to commit suicide), it definitely validates the concern surrounding cyberbullying.

3.10 Who is involved

3.10.1 The bully and the victim

There are several reasons that people choose to bully and in most cases the victim and bully are known to one another. A cyberbullying incident can very often be an extension of a traditional face-to-face bullying relationship. There have also been a number of anecdotal media stories regard bullying acts as a result of broken friendships. In the UK, two teenage girls used a fictitious Facebook account to exact their revenge. They set up a false persona and were able, despite the victim not having met him, to convince a fellow schoolgirl into believing that she had an online boyfriend. The girls then used the account to announce the boy’s suicide and established a tribute page in his honour. It was only once police records were checked that it was established that “Jaydon” was a fabrication (Tozer, 2011).

However, as mentioned earlier in this dissertation, cyberbullying is an opportunistic offence and anonymity reduces the chance of being caught (Herring, 2003). Burton and Mutongwizo’s findings are in agreement with this statement and it is clear that anonymity is an enabler.

Research also suggests that there is a significant link between those who have been victimised and those who are responsible for the offence (Burton & Mutongwizo, 2009). In Burton and Mutongwizo's study, findings indicate that seven out ten (69.7%) of those who had admitted to bullying via SMS, had themselves been a victim. A similar trend was established in both chat rooms and other electronic media. Reasoning for this can be attributed to the clear lack of mediating and control factors that tend to be present in traditional bullying incidents. Victims retaliate and respond to the harassment using the same or similar means, relying on the internet's inherent anonymity.

3.10.2 The audience

As is highlighted by the definitions, bullying involves one or more perpetrators and the victim. What is not recognised sufficiently is the physical or virtual presence of the bystander. The role of the bystander is significant in preventing or reporting an incident, and new educational programmes have been developed to educate adolescents in this regard. Bystanders are uniquely placed to either contribute to the problem or the solution (Li, 2006; Agatston et al., 2007; Slonje & Smith, 2008). Very rarely are bystanders in a neutral role, but they often choose to ignore the situation or do nothing about it (Li, 2006, 2007 & 2010; Price & Dalgleish, 2010; Smith et al., 2008). Reasoning for this can be attributed to fear, as bystanders are concerned that the attention may be focused on them or that they may be labelled a snitch. Bystanders are often unwitting accomplices, drawn to the incident because they find the situation humorous. These reactions serve to encourage the bully in his/her behaviour and the bystanders are as guilty as the offender. Although the role of a bystander in cyberbullying is very similar to that in school-yard bullying, because of the anonymity factor it is easier to walk away.

3.11 Response and prevention of cyberbullying

3.11.1 Technical responses

Eliminating all online risk is an impossible task. In the past, there have been efforts to limit exposure by using parental controls and monitoring software, along with social networks intended for children, as well as ring-fenced online environments. Many social websites, like Facebook, have security settings which can be activated to prevent exposure. However, despite this effort, research shows that given time, these measures will be circumvented (Mitchell, 2010).

Software that can be effective in reducing exposure to risks must be mobile based and must include communication management. This means that parents or guardians can limit the time of day in which a child can access the internet and their instant messaging. An excellent example of this is Mobiflock, a mobile safety and security application that runs on all four major operating systems (<https://www.mobiflock.com/>).

3.11.2 Educational responses

A major concern raised in literature is the lack of parental or adult supervision, with many children being able to access the internet unfettered and unmonitored. Results (Payne, 2012) show that only 16% of children feel that their parents actively monitor their access, which is in line with research, which reports that 66% of parents provide no supervision. Conversely, when asked only 7% of parents indicated that they provided no supervision. The South African Film and Publication Board states that parental supervision is critical to protecting children from the inherent dangers of the internet. This lack of awareness can be attributed to the differing way in which youth and adults use the same technology. Adults tend to use technology for business and communication, while children are developing social identities and online personas. The result is that many parents are unable to take the necessary precautions in order to protect their children (Maša & Leoschut, 2012).

A further concern is the gap, present in grades 6 and 7 pupils, between acknowledged cyberbullying behaviour and cyber-victimisation (see figure3). This indicates that current anti-bullying programmes are ineffective both in the education and the reduction of cyberbullying behaviours (Payne, 2012). The existence of this gap supports von Solms and de Lange proposition for the establishment of an e-safety awareness programme.

Maša & Leoschut (2012) postulate that schools provide the ideal setting to initiate and facilitate prevention programmes and interventions. Although it is not the sole responsibility of the school, as it can be argued that cyberbullying generally takes place outside of school and is therefore a parental issue, schools are uniquely placed and are critical to any educational programme. In many cases schools have traditional bullying programmes in place and material could be augmented to include a cyber-behaviour and safety module.

Maša & Leoschut (2012) further suggest that although there is limited literature reporting successful cyberbullying prevention campaigns, analysis of parallel fields of traffic safety, drug and alcohol abuse can provide us with success criteria. These are listed as follows:

- Is grounded in a theoretical framework.
- Focuses on concrete skills development.

- Takes into account different target audiences and adjusts the material accordingly.
- Employs interactive instructional strategies.
- Considers the individual or smaller groups in the target audience.
- Implements material in a comprehensive way.
- The intervention must exceed more than 20 hours of contact time.

Each of these points would need to be considered carefully when creating a prevention programme, and a structured approach would need to be applied to measure the success of the campaign. Maša & Leoschut (2012) further suggest that successful campaigns target age and gender specifically. Unsuccessful campaigns focus on knowledge transfer rather than behaviour change or only intend to induce fear. In contrast to this reasoning, Crossler et al. (2013) argue that, based on Protection Motivation Theory studies, a well-measured dosage of fear could be used to motivate children to comply to appropriate behaviour online.

3.12 Legal responses

As of the 27th of April 2013, the long anticipated *Protection from Harassment Act of 2011* came into force. Prior to this victims had to rely on existing civil and criminal law structures for protection and recourse, viz: crimen iniuria, assault, criminal defamation, and extortion (Badenhorst, 2011).

The new law, according to UCT intellectual property legal advisor Shihaam Shaikh, may present a viable mechanism to protect youth from cyberbullying and online harassment. She adds that this provides an inexpensive civil recourse, which allows victims to apply for a protection order from the clerk of the court. This protection order will then be issued to the accused perpetrator, and if this order is then contravened, they will be deemed guilty and are liable to a fine or potentially a prison sentence, not exceeding five years (Bothma, 2013).

Shaikh further adds that the following acts could be deemed harassment:

- Threatening messages sent to an individual irrespective of the electronic platform.
- Threatening remarks made about a person on social media platforms.
- The distribution of offensive content.
- Sharing offensive, abusive or embarrassing content or the manipulation of media, which in turn embarrasses or offends.

- Sexual advances made to an individual through any social media platform.

The differentiating factor between this and existing law is that it is the effect that the behaviour has on the complainant, rather than the intent of the alleged perpetrator, will be seen as sufficient to approach the courts. If the complainant fears for his/her safety or fears that an imminent act will compromise his/her safety, the courts will issue the protection order (Bothma, 2013). The efficacy and practical implications of this law are yet to be determined and, although concerns have already been raised to its potential abuse, this is certainly a step in the right direction.

3.13 Theoretical framing

Initial investigations into the cyberbullying phenomenon were conducted in the absence of theory (Walker et al., 2013), with much of the research being exploratory and explanatory in nature. Over the past decade, however, researchers have elicited contributions from several different fields of research, and attempts have been made to link with human behaviour theories in bid to understand and predict behaviour (Walker et al., 2013). The lion's share of contributions can be credited to psychology (Smith et al., 2012), with theories of criminology having received recent attention. Hay & Meldrum (2010) argue that these links are only tentative, and that there is a paucity of native theory. Smith et al. (2013) are in agreement with this observation and further posit that the field lacks an overall theoretical approach. This is problematic, as science uses theory as tool by which to organise accumulated knowledge and to aid understanding (Hay & Meldrum, 2010). Additionally, the lack of good theory can be attributed to many researchers not making their own understanding of theory explicit, and their failure to connect theory with practice (Gregor, 2006). The development of good theory takes time, and theoretical tenets need to invoke empirical hypothesis, which are falsifiable. For the purposes of this section of the literature review, theory will be seen as *“abstract entities which can be used to describe, explain, and enhance predictions, which can be used to form the basis for intervention and action”* (Gregor, 2006).

Walker et al. (2013) observe that the role of communication technology is absent, and that the inclusion of IS and IT theories could prove fundamental to understanding. This not only represents a gap in current literature, but it equally provides an excellent opportunity for IS to make a valuable contribution to the current understanding of the phenomenon.

The section that follows is threefold. Firstly, there is a broad review of the more dominant theories which have made great strides in understanding and explaining the complications of cyberbullying behaviours. Secondly, there is a more focused review of theories which will be used to support the third and final section, which proposes a theoretical model by which to frame the characteristics of cyberbullying. The model is an extension of the Kernaghan and Elwood (2013) model, which itself builds on the Goffman (1955) conceptual framework of Presentation of Self.

3.13.1 Dominant theories

This subsection reviews only some of the more dominant theories. Other theories which have received focus, but have not been included, are: *Social Rank or Social Dominance Theory*; *Social Ecology Theory*; *Social Information Processing Theory*; *Social Learning Theory*; *Moral Development Theory*; and *the Theory of Planned Behaviour*. Excluding these theories from this literature review is in no way meant to diminish their relevance, but only the more dominant theories have been included.

3.13.1.1 Social Presence Theory

Social Presence Theory, developed by John Short, Ederyn Williams, and Bruce Christie in 1976, measures communication media based on the communicator's sense of awareness of the intended partner. In other words, functional and healthy relationships rely on the social and physical presence of other human beings and the ability to read their verbal and non-verbal cues (Mark & Ratliffe, 2008). In cases where the social presence level is higher, the communication between people is better. Tu (2000) argues that originally the research focused on face-to-face and telephonic communication. This has now been expanded and has been foundational in the development of modern computer-mediated communication research (as cited by Mark & Ratliffe, 2008). This seminal theory on the social effects of communication technology, posits that social presence can be measured on a scale. On this continuum, face-to-face interactions are considered to have the highest degree of social presence, while text-based communications have the lowest level.

Owing to the low level of social presence in digital communication and because of the anonymity of the internet, online bullies feel disinhibited (Willard, 2007; Kowalski et al., 2008; Hinduja & Patchin, 2009). This leads to bullies saying and doing things that they would not necessarily have the courage to do in real life (Tu, 2000; Joinson, 1998). Bullies feel safe, their real world identities are hidden, allowing their nasty sides to be unleashed. This is often accompanied by a tendency to depersonalise the intended victim (Kirby, 2008). The result is that, because the victim's reaction cannot be assessed, a cyberbully will often cause more harm than was first intended. In addition to this, messages that were not intended, can be perceived as hurtful by the receiver. This can prove to be a particular problem as messages or comments, which do not intended to be, can end up doing damage.

3.13.1.2 Social Norms Theory

Social Norms Theory is based on the premise that behaviour is often influenced by erroneous perceptions of how other members of a social group may act or think (Espelage, Rao & Craven, 2013; Blumenfeld, 2005). These are referred to as perceived and actual norms. Social Norms Theory presents us with two clear avenues of understanding. Firstly, the theory suggests that misperceived social norms can lead to behaviour that could expose a victim unnecessarily to ridicule. Equally, an adolescent child might say or do something online that constitutes deviant behaviour, because they thought that it was acceptable. The second avenue to consider is that the strong influence of peer norms on adolescent behaviour has been well established. These norms can be enforced through peer pressure and victims could be targeted if these norms are not adhered to. An example of this is the code of silence that exists with adolescent social groups. Children often remain silent because they don't want to get their peers in trouble.

Social Norms Theory states that misperceived social norms can, by focusing on the positive healthy behaviour of the majority, be corrected by targeted interventions (Blumenfeld, 2005). Fabiano (1999) suggests a six stage social norms intervention process, as follows:

- 1) Assessment to collect data.
- 2) Selection of the normative message.
- 3) Test the message on a target group.
- 4) Select the normative delivery strategy.
- 5) Determine the dosage of the message.
- 6) Evaluate the effectiveness of the message.

These stages provides the process of evaluating the intervention with rigour and validity.

3.13.1.3 General Strain Theory

General Strain Theory (GST), which is rooted in criminology, has of late received considerable attention in literature (Hay & Meldrum, 2010; Patchin & Hinduja, 2012). The theory emphasises that individuals can be pressurised into deviant behaviour owing to strainful circumstances. GST differs from existing strain theories, in that it views strain, not just as economic, but as a result of not being treated as he or she would have liked, or experiences an undesirable outcome (Agnew, 1992; Hay & Meldrum, 2010). Strains could include: hostility from parents, rejection by peers, negative experiences from school, and physical or criminal victimisation. This theory allows us to understand why some

offenders, despite previous transgressions and despite the risk of being caught, will continue to cyberbully.

3.13.1.4 Routine Activities Theory

Routine Activity Theory (RAT) is another theory which has received considerable attention in cyberbullying literature. This theory, which was first proposed by Cohan and Felson (1979), has been utilised to explain cyber-victimisation (Walker et al., 2013). The theory suggests that the cause of deviant behaviour can be seen as a chance event, where a motivated offender and a suitable target come together in an environment where there is a lack of capable guardianship (Walker et al., 2013). Children are, to a large extent, exploring the benefits of the internet without any or adequate supervision. The smart phone and social media has added a layer of complexity, granting a suitably motivated offender a wide selection of would-be suitable targets (Mesch, 2009; Navarro & Jasinski, 2012). The availability of a suitable target, the lack of supervision and the motivated target can be a dangerous mixing leading to cyber-victimisation. Proponents of the Routine Activity Theory would suggest that children who have unrestricted and unfettered internet access, are exposed to risk of both victimisation and offence.

3.13.2 Framework related theories

This section reviews dominant IS related theories which have been presented in literature, and propose new avenues for future researchers to investigate. One of these areas is Behavioural Information Security.

As has been mentioned, psychology has been the main contributor to the body of knowledge surrounding cyberbullying. Information Systems theory has made little contribution, but by linking cyberbullying theory with existing behavioural information security theory we are presented with an exciting opportunity to further our understanding. Crossler et al (2012) outline a number of concerns and present four clear future directions for behaviour information security research. They list them as: *separating insider deviant behaviour from insider misbehaviour, unmasking the mystery of the hacker world, improving information security compliance, and cross-cultural information security research*. Each of these directions of research resonates with current cyberbullying research. By linking these two fields we will be able grow our knowledge.

3.13.2.1 Rational Choice Theory and Self-Control Theory

Rational Choice Theory states that deviant behaviour is the result of a cost versus benefits assessment, in which the offender decides that the benefits outweigh the potential costs. Owing to the inherent characteristics of the internet environment, the potential risks are perceived to be low, with offenders being able to remain anonymous and avoid confrontation. In addition, the lack of supervision means that many youths are exploring and interacting online unfettered and unrestricted. The internet provides suitably motivated offenders with the means and opportunity in which to act.

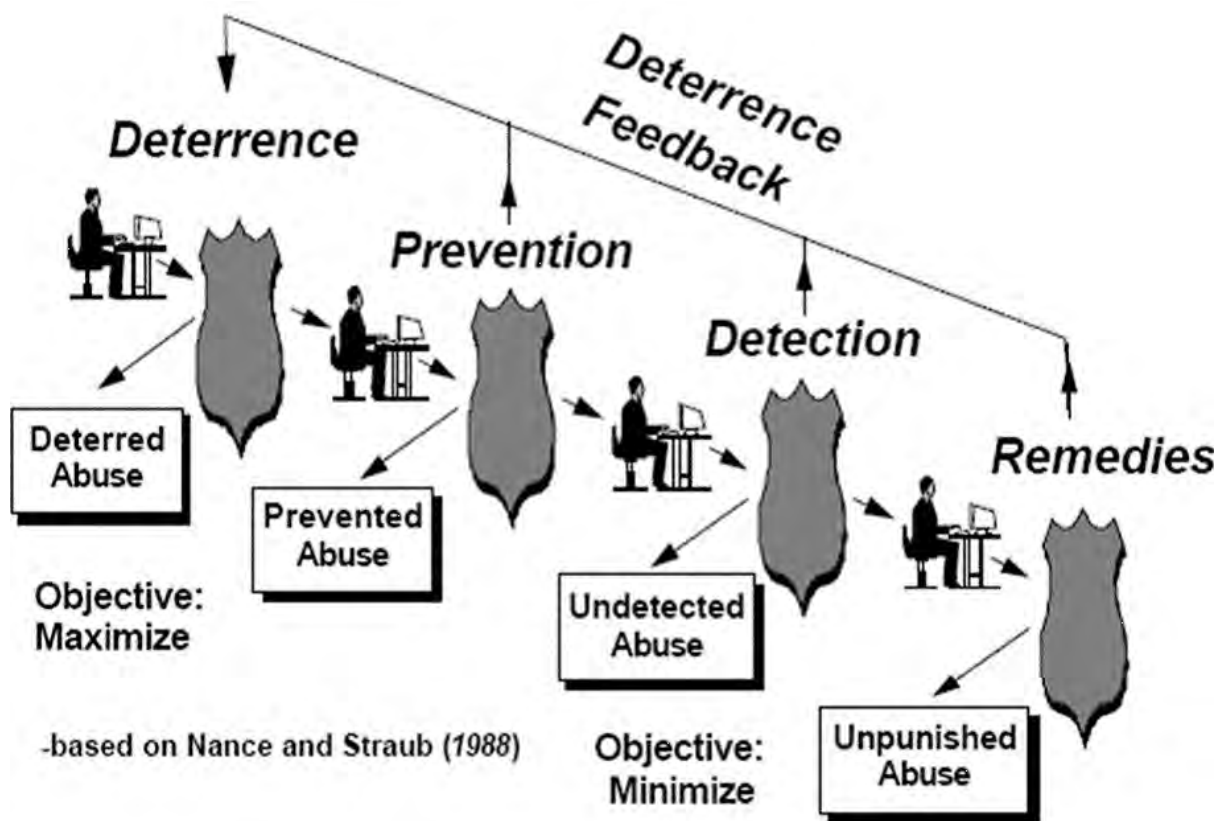
Central to the theory of self-control is the supposition that deviant behaviour is dependent on a person's level of self-control. Individuals who are able to exercise a greater level of self-control are able to resist the urge to commit a crime. Gottfredson and Hirschi (1990) posit that the level of self-control can be negatively affected by poor parenting. They suggest the following four factors which influence self-control, viz: the level of attachment between the parent and child, the level of parental supervision, the ability of parents to identify deviant behaviour, and the extent of the resultant punishment.

Van Dijk, Sagel, Grande and Toornvliet (2006) suggest that it is appropriate to combine these two theories to form an explanatory model, they argue that self-control influences rational choice.

3.13.2.2 Security Action Cycle

Discussion related to effective intervention and remedies, can be aided by considering Straub and Welke's (1998) Security Action Cycle (Figure 2). Their model suggests that by focusing on four areas of implementation, an organisation is able to reduce its overall IS security risk, and deter staff from potentially causing harm (Willison & Warkentin, 2013). They argue that organisations should firstly try to deter potentially dishonest or malicious staff and that if this fails, preventative measures should be in place to stop such behaviour. This is then followed by attempts to prevent, and remedy the situation. Straub and Welke (1998), very importantly, argue that organisations should maximise their efforts to deter and prevent such behaviour, and that by doing so they will minimise the need for detection and remedy (Willison & Warkentin, 2013). This model resonates with the cyberbullying phenomenon, and could be adapted to address intervention concerns and efforts. Cyberbullying intervention efforts should focus on deterring and preventing the offence from taking place. This raises the question as to what constitutes deterrence, prevention, detection and remedies, and opens up avenues for further research and development.

Figure 2 - Straub and Welke's Security Action Cycle (1998)



3.13.2.3 Protection Motivation Theory (PMT)

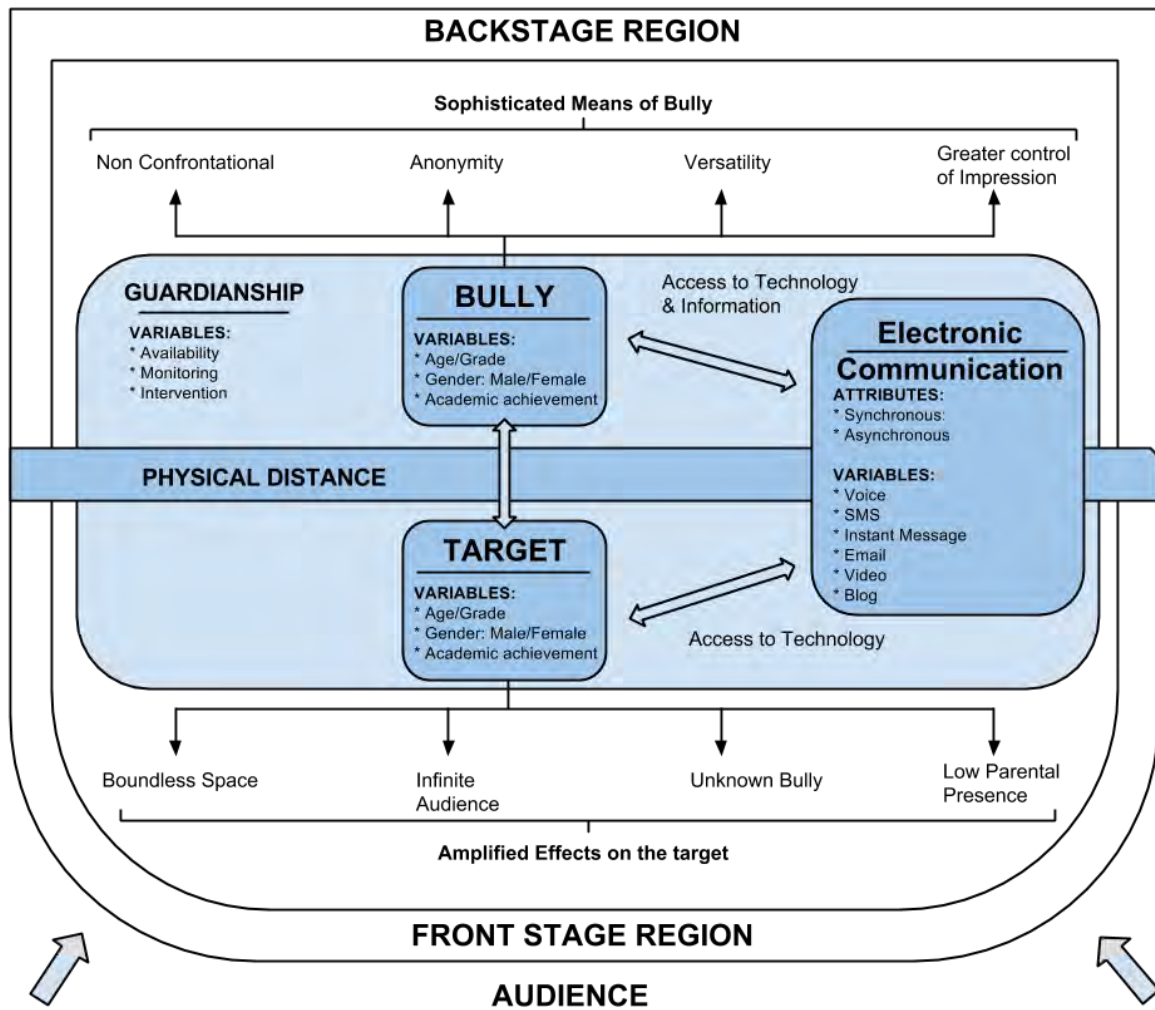
Crossler et al. (2013) observe that Protection Motivation Theory, has been the focus of investigation in recent behavioural information security literature. PMT suggests that fear can be a powerful motivator to encouraging staff to comply with security measures. For example, an adolescent child may decide not to post something, for fear that their personal information could be comprised. Or a potential offender could refrain from harassing someone, for fear of being caught. Although research has only scratched the surface, this avenue of study could be foundational in developing highly effective intervention and educational programmes.

3.13.3 Conceptual framing

Erikson (1968) acknowledged that although identity issues could arise throughout life, it was during adolescence that the question of “Who am I?” was particularly pertinent (as cited by Mark & Ratliffe, 2008). He posits that owing to a number of cognitive, social and physical changes, coupled with significant life choices, teenagers are faced with an identity crisis. For the teenager this is a watershed in their personal development, and Erikson characterises adolescence as a time of identity formation versus role diffusion (as cited by Mark & Ratliffe, 2008). Teenagers derive their self-esteem from their standing within their peer group, and it is at this time of uncertainty that an offender can perceive bullying as a way to either raise their own or lower someone else’s social position.

Goffman (1959) posits that any social context can be studied from the view point of impression management. His conceptual framework of Presentation of Self views social interactions as a series of performances, where a performer manages and controls the impression they wish to make on an audience. Goffman (1959) makes a distinction between three different regions, viz: *front*; *back* and *other*. The *front* is the public performance area, while the *back* is the private area where the impression can be openly planned and constructed. *Other* is any area which is neither *front* nor *back*. He further identifies the three critical roles in the performance as, those who perform, those who are performed to, and outsiders or people who neither participate nor observe the performance. The application of this framework to online social interactions has been recognised in literature (Lin, Wu & Hsieh, 2009; Miller, 1995; Ross, 2007), while the benefit of applying this to the cyberbullying phenomenon has been proposed (Kernaghan & Elwood, 2013). The model presents us with a clear conceptual representation of the characteristics of the phenomenon upon which we can begin to map behaviours, understand the environment and view causes. Equally, it illustrates the amplifying effects experienced by the victim, as well as the sophisticated means at the bully’s disposal.

Figure 3 - Model of the Characteristics of Cyberbullying in relation to Bully, Target and Electronic Communication (extension of Kernaghan & Elwood, 2013)



The conceptual model proposed above, is an extension of the model proposed by Kernaghan and Elwood (2013). The proposed model makes several additions, which aid conceptual understanding. Firstly, the model makes use of UML (Unified Modelling Language) class components to represent the actors and the level of guardianship. This allows the model to show the attributes and variables of each component. Secondly, the role of electronic communication has been raised to that of an actor, which can shape or influence the performance. The bully can, through their choice of communication medium, select a specific audience, giving his/her greater control of the performance. Certain media, however, combined with the inherent characteristics of cyberspace, can cause a message to have unintended outcomes. In this case the electronic communication is an actor. The relationships that exists between target, bully and electronic communication are mapped. Thirdly, central to a number of theories is the lack of adequate guardianship, and its effect on the environment and its role in shaping self-control. This has been added to the model to illustrate its importance and influence. Reynald (2013, p. 62) presents a set of variables which can be used to measure the level of active guardianship, and can be used to effectively judge the level of active guardianship. This lack of adequate guardianship is a common thread which arises in a number of theories.

3.14 Summary

Although much has been achieved and there is a raft of international research, the same cannot be said for South Africa. There are only a handful of studies and little is known about the extent of the problem.

Empirical research indicates that cyberbullying constitutes a significant minority of the greater population, but that it can cause greater harm than traditional school-yard bullying. Effects range from mild frustration and distress, to more serious long-term psychosocial disorders. Of greater concern are the links established between the feelings of depression and low self-esteem associated with repetitive long-term harassment, and suicidal ideation. Tokunaga (2010) posits that what is needed is a theoretical framework, enabling us to not only understand, but to predict cyberbullying behaviours and victimisation.

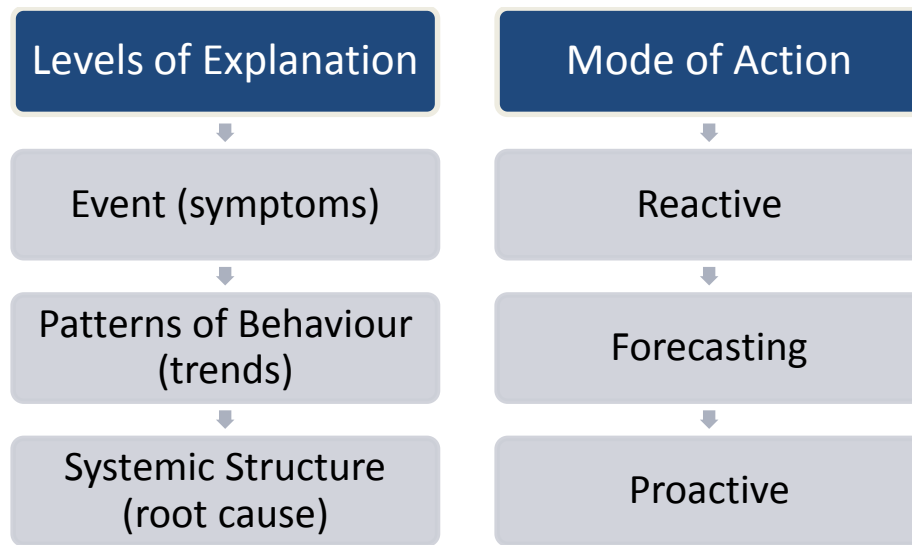
Definitional issues are evident and the three key elements of intent, repetition, and the power imbalance are in question. Cyberbullying is not the only area of research which has issues surrounding intent, behavioural information security has been plagued by similar concerns. This presents us with an opportunity to link the two fields of study to assist us in our understanding and combatting errant cyber-behaviour. Researchers need to be able to differentiate between the types of behaviours, and a continuum, representing the range of behaviours could assist in this regard.

4 Research Objectives and Questions

As the literature review has illustrated, there is a growing corpus of academic literature which has made a substantial contribution to our understanding of the phenomenon and the role of technology. Results indicate that cyberbullying constitutes a significant minority, and that despite similarities with traditional bullying, there are distinct differences which emphasise the importance of research into this area. It is also equally clear that current studies are fraught with inconsistencies, reasoning for which has been attributed to the lack of consensus on a standardised definition (Tokunaga, 2010). Concerns regarding the transferability and adequacy of current definitions places existing results in question (Smith et al. 2013; Tokunaga, 2010), and there is a distinct lack of conceptual and operational clarity (Tokunaga, 2010). Kernaghan and Elwood (2013) highlight a tendency to categorise behaviours by its impact on the victim, which would lead to a number of noticeably different behaviours being classified as cyberbullying. Burton and Mutongwizo (2009) are in agreement with this thinking and they posit that greater levels of nuance and differentiation between cyber-aggression and cyberbullying is required.

In addition to these concerns, Senge (1990) argues that there are multiple levels of explanation, and that although each of the levels is valid in its own right, there is a tendency for key decision makers to be caught at the event or patterns of behaviour levels. Explanations which describe events or the impact on the victim/s are the most common as these are the easiest to identify, but the resulting action can only ever be reactionary. This is certainly the case within cyberbullying, in particular where there are more serious repercussions like suicide or suicidal ideation. The second level of explanation, owing to rapidly changing technology, is where much of the current research has taken place. Emphasis has been placed on identifying trends in order to forecast and predict behaviour. An understanding of these patterns of behaviour leads to more effective decision making. However, the third level, where structural explanations are constructed, is still not been reached. These explanations are the most powerful, but are the least common, and they address the root cause of the problem. If these root causes can be identified, then we are able to orchestrated significant change in behaviour. A clearly defined definition will assist us to classify behaviours and thus begin to identify root causes.

Figure 4 - Levels of Explanation (Senge, 1990)



This research is composed of three main objectives.

4.1 First objective

The first objective will be to address the concerns associated with the current lack of a standardised definition. The argument laid out in the literature review, and in the introduction to this section, specifically question the transferability of *repetition* as a characteristic. The concept of *repeated* offences being adopted as a key identifier of cyberbullying behaviours is under dispute. The new definition, proposed in the literature review, reduces repetition, along with the impact on the victim, to a subsidiary of the phenomenon. Reasoning for this is attributed to the nature of electronic communication where, owing to a seemingly limitless audience, the impact can be greatly enhanced. In order to test the validity for this claim, a composite impact index will be compared to the rate of reported incidents. The assumption will be that if the impact perceived by the victim is not significantly higher in repeat incidents, then *repetition* should not be a main characteristic of the phenomenon, and thus should not be included in the definition.

The continuum, proposed in the literature review will be used to differentiate between the different types of cyber behaviours. It is the proposition of this researcher, that this will shift the focus away from the impact on the victim as a means for classification, to the behaviours exhibited by the perpetrator. This differentiation between unintentional and malicious acts would provide clarity and lay the foundation for a standardised definition.

4.2 Second objective

The second is to conduct a broad exploratory study into the nature and impact of cyberbullying within the local context. Reasoning for this can be attributed to the distinct paucity of local research and the rapid development of technology. The results of the survey will be compared to the first set of data which was collected in 2012 (n=1258), and the subsequent analysis will assist us in tracking trends and potential shifts in the phenomenon.

4.3 Third objective

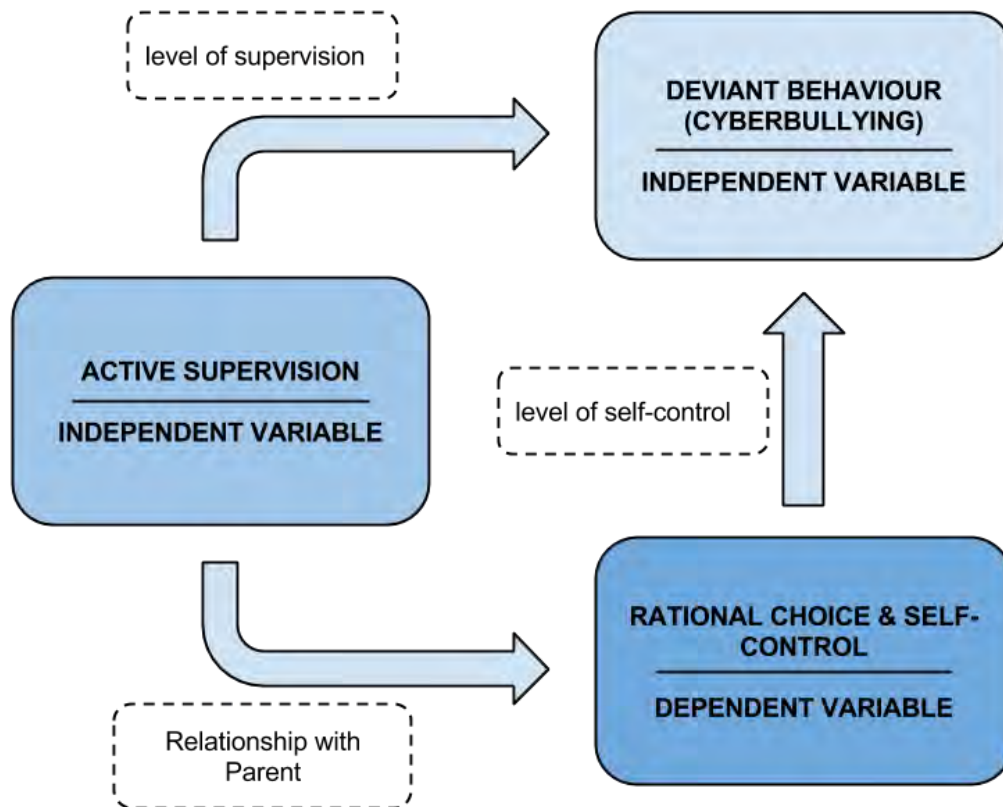
Existing literature, as highlighted in the previous chapter, identifies several electronic communication related characteristics that can provide a plausible explanation for some of the cyberbullying behaviours that we see exhibited. *Social Presence Theory* or *disinhibition* suggests that owing to the lack of physical proximity and thus immediate feedback, a bully is not in a position to appreciate the full impact of their communication. This lack of non-verbal and relational cues causes the offender to be merciless and they appear to lack empathy. Equally, a victim could misinterpret a message which many not have been intended to cause distress. *Anonymity* is perceived as a cause of cyberbullying, as it assumes the youth is able to disguise their identity, thus liberating themselves from social norms and restraint. The chances of being caught are minimised and the perpetrator feels free to behave in a manner that they may not have done so in real life. For the victim the unknown identity of the offender acts as an amplifying factor, causing greater distress.

The ability to *draw in a wider audience* provides an offender with an infinite number of people with which they are able to control their desired impression. The perception of an infinite audience can amplify the impact of the incident. A further characteristic is the ability to reach beyond the boundaries of the schoolyard to access a target anytime and anywhere. Home is no longer a safe haven, and this seemingly relentless onslaught once again amplifies the impact on the victim. The *lack of adequate supervision* also appears to have a significant relationship with cyberbullying behaviours. Routine Activity Theory suggests that cyber victimisation can be caused by the convergence of a suitable target, a motivated offender, in the absence of capable guardianship. Self-Control Theory argues that it is the lack of supervision, coupled with an inability to recognise deviant behaviour and the lack of punishment, which leads to lower levels of self-control.

The question that we are faced with is, what causes deviant behaviour or what causes a youth to cyberbully another. It seems plausible then to argue that cyberbullying is a rational choice, which is influenced directly by the extent of one's self-control. The lack of self-control coupled with the inherent characteristics of cyber space provides us with a plausible scenario for offence. Central to this is the level or lack of adult supervision, where youths are able to interact without restraint. It is therefore the third objective of this research to investigate the relationship between the lack of supervision, self-control, and cyberbullying behaviours. This final objective is intended to represent an attempt to identify some of the root causes of the phenomenon, thereby making a unique contribution to theory and empowering us to be proactive.

The constructs of this research objective are represented in the diagram below (Figure 3).

Figure 5 - Constructs of Secondary Objective



Reynald (2013, p. 62) presents a set of variables which can be used to measure the level of active guardianship. He refers to these as guardianship in action, and identifies the following factors on a four point continuum: *Invisible* (no guardianship available); *Available* (guardianship available); *Monitoring* (guardianship available and actively monitoring); *Intervening* (available, monitoring and intervening). He further posits that deviance behaviour will decrease in the presence of active monitoring, with appropriate and immediate intervention (Reynald, 2013). Active adult supervision is the most effective form of monitoring, but it is not limited to this type of supervision. Effective monitoring by web site owners, fellow peers, and technology means, can form part of active supervision. These measures have been adapted to ascertain the level of active guardianship in the online environment. The four factors which influence self-control (Gottfredson & Hirschi, 1990), suggested in Self-Control theory will be used to investigate levels and influences to self-control.

4.4 Research Questions and Hypotheses

Based on the research objectives the following research questions have been develop and represent the focus areas cover in the literature review.

- **Research Question 1:** Do victims of repeated incidents of cyberbullying experience greater levels of impact?
- **Research Question 2:** To what extent do South African children experience cyberbullying?
 - In relation to gender, age, grade and school type (co-educational or single sex);
- **Research Question 3:** Do the following factors cause/influence a person to either conduct or make susceptible to cyberbullying behaviours?
 - Gender, Age, Academic performance & extra-mural participation, technology usage & exposure, traditional bullying factors;
- **Research Question 4:** Does the lack of active supervision and low levels of self-control increase the likely hood of cyberbullying behaviours?

Research question one is descriptive in nature, while research questions two and three are inferential and explanatory in nature. Research questions two and three have been further broken down into a series of hypothesis which are to be tested against the results of the survey.

Table 2 - Research Question One Hypothesis

Research Question 1: Do victims of repeated incidents of cyberbullying experience greater levels of impact?		Test Employed
<i>Hypotheses 1.1</i>		
H₀:	Population means do not differ by level of perceived impact	t-test (independent sample)
H₁:	Population means differ by level of perceived impact	

Table 3 - Research Question Two Hypothesis

Research Question 2: Do the following factors cause/influence a person to either conduct or make susceptible to cyberbullying behaviours?		Test Employed
<i>Hypotheses 2.1</i>		
H₀:	Population means do not differ by gender	Chi-Squared
H₁:	Population means differ by gender	
<i>Hypotheses 2.2</i>		
H₀:	Population means do not differ by age or grade	ANOVA
H₁:	Population means differ by age or grade	
<i>Hypotheses 2.3</i>		
H₀:	Population means do not differ by internet usage	ANOVA
H₁:	Population means differ by internet usage	
<i>Hypotheses 2.4</i>		
H₀:	Population means do not differ by traditional bullying factors (i.e. traditional victim or bully)	Chi-Squared
H₁:	Population means differ by school traditional bullying factors (i.e. traditional victim or bully)	

Table 4 - Research Question Four Hypothesis

Research Question 3: Does the lack of active supervision increase the likelihood of cyberbullying behaviours?		Test Employed
<i>Hypotheses 3.1</i>		
H₀:	Population means do not differ by level of active supervision	Chi-Squared
H₁:	Population means differ by level of active supervision	
<i>Hypotheses 3.2</i>		
H₀:	Population means do not differ by level of self-control	Chi-Squared
H₁:	Population means do differ by level of self-control	

5 Research Methodology

5.1 Research Philosophy

The literature review has exposed a number of gaps in literature, in particular the lack of definitional consensus and conceptual clarity (Tokunaga, 2010). To address these gaps a classification continuum has been suggested and an adaption of Goffman's (1959) framework of Impression of Self has been presented. The descriptive conceptual model allows for the identification of theoretical tenets, upon which the hypothesis have been constructed. Explanatory analysis will be conducted on the data, which will enhance our predictions. The formulation and testing of hypotheses via the quantitative survey, which is the principle means of data collection, is generally associated with the positivistic paradigm. (Saunders, Lewis and Thornhill, 2009). It is for these reasons that a positivistic stance will be adopted. Positivism presents us with an unbiased point of view from which we can observe social phenomena.

However, there is concern that valuable observations could be missed if a purely positivistic stance is assumed. In particular we need to appreciate that most of these instances cannot be observed, but only the outcomes or impacts can be reported. The qualitative questions on the survey are associated with the positivist paradigm, but there are however two distinctly qualitative free form questions. To meet the purposes of these varying, but associated approaches, this research will adopted a pragmatic philosophy. Johnson and Onwuegbuzie (as cited by von Solms & de Lange, 2011) suggest that a pragmatism is a deconstructive paradigm that is useful to researchers who intend utilising a mixed research approach.

One of the core debates between social science researchers who adopt an interpretivist versus a positivist paradigm, has been the distinction between realism and anti-realism. Pragmatism rejects this distinction, thus making this paradigm a most appropriate epistemology for social research. The very nature, and certainly one of the major challenges of this phenomenon, is that the technology and social norms are changing rapidly, making it difficult to understand. To pragmatists, reality certainly exists, but it is ever changing, based on our actions or on those of other social actors. It is because of this ever-shifting cycle of action and reaction that we fail to find an enduring, external reality.

In pragmatism there is an emphasis then on our actions and the consequences of our actions, and it is this emphasis that separates or creates a gap between it and interpretivism. This is certainly the case in this research, where we are all too often focused on the actions of bullies and victims and the outcomes of these actions. It is for this reason, and those outlined above that a pragmatic epistemology has been adopted, so that we are able to explore the trajectories and roots of these experiences, and thus help to understand these social conflicts in more detail.

5.2 Approach and Purpose

As has been mentioned much of the primary descriptive research within this phenomenon has taken place internationally, with only a handful of quantitative studies in South Africa. This study will be deductive in approach, and its purpose will be both descriptive and explanatory in nature.

Through a quantitative online survey, a concrete description of the phenomenon will be formed, adding to our knowledge of the shape and nature of cyberbullying. The descriptive statistics and graphs, will provide us with social indicators, answering fundamental questions about whether cyberbullying incidents are on the increase or decrease, and how prevalent is the problem. It is upon these accurate descriptions that we will be able to investigate the underlying root causes (Marsh, 1982).

The descriptive element of the research will provide us with a spring-board upon which we can begin to ask questions of 'why', leading us to a more explanatory element of the study. The study will begin to unearth correlative and causal relationships, and help us to answer questions of why things are happening, providing a basis for generalisation.

6 Research Strategy

A qualitative survey will be the primary instrument used to collect data, and follow-up focus groups will be used to triangulate findings.

6.1 Timeframe

The nature of the research is such that the timeframe of the study will be longitudinal. (Saunders et al, 2009). The first round of data collection was conducted in 2012, and forms part of my previous research. The second round took place in early in second quarter of 2014. This is also in agreement with the Western Cape Education Department's (WCED) policy, in which no surveys may take place in the fourth term of the year, due to examinations and academic report creation.

6.2 Quantitative Research Instrument

Many of the discrepancies between research results can be attributed to a lack of consistency between questioning in the various surveys. Timeframe is of particular concern, and questionnaires require respondents to report on incidents ranging from the last two months, the last year, to all occurrences. Surveys lacking a set timeframe or they included extended periods of time, will report higher rates of incidents, which can create unnecessary concern. A further inconsistency is the lack of distinction between online harassment and bullying. Many surveys do not make a distinction between a single one-off event and a repeated offence, which can once again lead to distinctly higher rates of reported incidents. Complicating the matter further are the definitional issues of repetition, intent, and the power imbalance. It is clear that not only is an integrated definition critical, but so too is a standardised psychometric instrument.

The proposed questionnaire for this study comprises questions based on the work of Smith (2008), who in turn included the key elements of the Revised Olweus Bully/Victim (Olweus, 2003) and DAPHNE questionnaires (**Appendix A**). A review of the following authors' work was conducted, and relevant questions were extracted: Burton & Mutongwizo, 2009; de Wet 2006; Li, 2006 & 2007; Mark & Ratliffe, 2008; Smith et al., 2008; Slonje & Smith, 2008; von Solms & de Lange, 2011. Although this survey is not an established psychometric instrument, its design does provide a broad descriptive view of the sample, while allowing correlative relationships to be identified. It likewise facilitates cross-study comparisons (Smith, 2008; Burton & Mutongwizo, 2009), resulting in rich data and the tracking of trends.

The main constructs of question three, namely self-control and active supervision have been mapped to specific questions, and are displayed in the table below:

Table 5 - Mapping of Active Supervision Questions

Active Supervision – Hypothesis 3.1	
<i>Hypotheses 3.1</i>	
Q11	When at home, do your parents/caregivers monitor your internet activity?
Q12	When at home, are there rules about what you can and can't do online?
Q14	When at home, if you are caught breaking the rules, are you punished?

Table 6 - Mapping of Self-Control Questions

Self-Control – Hypothesis 3.2	
<i>Hypotheses 3.2</i>	
Q7	How would you describe yourself?
Q8	How do you get along with your parents?
Q13	When at home, do you stick to these rules?
Q15	When at home, what are the risks of being caught

This instrument was developed in conjunction with an experienced school counsellor, and formed the basis of my honours dissertation of 2012 ($n=1258$). This mixed-method online survey consists of 46 questions (44 quantitative and 2 qualitative), and a paper version was prepared to meet the needs of schools that lack adequate facilities. An online approach has been selected owing to its ease of use and accuracy of data collection, as well as its conduciveness to anonymity and confidentiality. A further reason is that an entire class can be asked to sit down and complete the survey in minutes, increasing the number of responses.

The questionnaire has been divided into five main sections in a bid to make the survey easier to understand and navigate, viz:

- **Demographics and Academic Progress (Entitled: About You) (Questions 1 to 8)**
 - To allow for the analysis of responds according to age, gender and current academic performance
- **Internet Accessibility and Usage (Questions 9 to 26)**
 - To determine frequency of internet usage
 - To determine perceived or relative monitoring of internet usage
- **Traditional Face-to-Face Bullying (Questions 27 to 29)**
 - To allow for analysis of relationship between traditional bullying and cyberbullying

- **Cyberbullying Incidents and Prevention** (*Questions 30 to 44*)
 - To investigate the nature of cyberbullying and its perceived impact on youth
- **Comments and Suggestions** (*Questions 44 to 45*)
 - To allow students to raise significant issues that are not included within the scope of this survey

Please note that in the definitions of bullying and cyberbullying the word repeatedly has purposefully been excluded. Reasoning for this is that questions Q27-Q29 and Q30, Q40-Q41 allow participants to indicate frequency, thereby allowing the study to differentiate between harassment and incidents of bullying.

Participation in the study will be optional and the anonymity of stakeholders will be ensured. Great caution has been taken in the design of the questionnaire to ensure that participants are not re-traumatised if they have been affected by cyberbullying. The language of the questions, along with the emotional impact that the survey may have, has been developed in conjunction with a child psychologist and an experienced school counsellor. Contact details for Childline have been included in the survey to offer support if needed.

6.3 Target Population and Sample

Current literature indicates that there is a significant relationship between incidents of cyberbullying and gender, age, academic achievement and frequency of access. It is for this purpose that this survey will target children between the ages of 12 and 18. Schools that were involved in the 2012 survey have indicated that they would like to participate once again. The involvement of these eight schools is seen as critical to the longitudinal validity of the proposed research. It is likewise critical in gauging the success of educational interventions.

Additional schools were targeted nationally for the aims of the research to be fulfilled. These schools will be recruited via the Independent Schools Association of Southern Africa (ISASA) school network, and direct communication. School counsellors were targeted as they are seen as the gateway into schools and have proved to be valuable allies in getting schools to participate. School counsellors were likewise approached to facilitate and identify focus groups. School counsellors tend to be at the coal-face of the phenomenon, dealing with both victim and perpetrator.

Sampling will take into account gender (including co-educational and single sex schools), age and economic factors, and will look to approach schools that will provide the most diverse population. Economic diversity is particularly difficult to achieve, and schools will be divided into four groups based on schools fees:

- Less than R12.5k per annum;
- R12.5k to R25k per annum;
- R25k to R37.5k per annum;
- R37.5k per annum and above.

This will allow the sample to include schools ranging from affluent to economically challenged, providing balance.

6.4 Data Collection Method

Data was collected via an online survey tool called Qualtrics (<http://www.qualtrics.com/>). Once data was collected it was then downloaded in an SPSS format for evaluation.

Paper-based copies of the survey have been prepared to address issues in schools that do not have internet access. Although this is not preferred or encouraged, it allows the research to include schools that would otherwise be excluded. These paper-based surveys are prone to errors, as required questions can be left out and the responses will need to be recorded manually.

6.5 Data and Analysis

Data was downloaded and analysed with IBM SPSS version 20.0, which is the researcher's software of choice. Cases that have a significant number of required questions missing will be deemed incomplete, and will be rejected.

From these results, descriptive statistics, along with simple graphs, will provide us with an overall view of the basic features of the data. Inferential statistics allows us to reach beyond the data and identify correlations and causal relationship. ANOVA (Analysis of variance), Chi-Squared, independent sample t-tests, and Mann-Whitney U tests will be used to identify statistical significances.

It needs to be noted here that much of the data collected will not fit a normal distribution, and so non-parametric statistics will need to be employed to ensure rigor in the results. Reasoning for this is that many of the questions in the survey are ordinal, meaning they do not rely on numbers, but rather on ranking. When ordinal data is present, and the data does not fit a normal distribution then non-parametric statistics are employed. The Mann-Whitney U is seen as the t-test of non-parametric test, and is seen to have greater efficiency on non-normal distributions.

6.6 Limitations

There are a number of limitations that need to be considered, and they are as follows:

- Children under the age of 12 and above the age of 18 have not been included in the, and there may elements of the phenomenon which may be missed by excluding these age groups;
- The majority of the sample group will come from urban areas and if rural areas are not included the results will be distorted. In many cases rural areas do not have access to the internet, or it is very slow, and the phenomenon may not even be present. However, an argument could be mounted to argue that owing to mobile technology and mobile data availability, the figures may only differ slightly.
- The sheer size of the project may be a limitation and careful consideration needs to be given logistics involved.
- A further limitation is the use of an umbrella definition for the cyberbullying phenomenon. As has been argued in section 2.3, earlier attempts to characterise the phenomenon and the introduction of mobile phones, lead to the need for a distinction. However, a distinction which is reliant on a type of technology is flawed, as the rapid progression of technology can make the distinction superfluous. With this umbrella definition in place one can then look at the trend of mobile technologies or social media and or types of communication. However, an umbrella definition could lead to an over generalisation in the findings and this needs to be understood.

6.7 Resources Required

The proposed research utilised an online survey, which is scalable and can include large numbers of respondents. The costs associated with the survey subscription are manageable, but assistance will be needed to communicate with schools and educational departments. Additional assistance will be required to setup and track the responses, and to drive responses where necessary. As has been mentioned this constitutes the greatest challenge, and funding for this aspect of the project will be required.

Additional funding may be required if focus groups occur outside of the Western Cape. Travel, accommodation and catering costs will need to be considered.

6.8 Confidentiality, Ethics and Approval

The confidentiality, anonymity and voluntarism of a respondent is of the utmost importance, and the greatest care must be taken in this regard. The name of the school and the identities of the pupils was kept in the strictest confidence. Formal ethics approval was obtained from UCT's Ethics Committee and the specific education department in which the schools reside. Permission will need to be obtained from both the parents and the relevant school prior to survey. Literature indicates that parental permission can be obtained in two ways, either active or passive consent. Active consent requires the parents to indicate that their child has permission to complete a survey, while passive requires the parents' objection to the survey.

7 Analysis of Data

Although the primary focus of this research, and the subsequent analysis, is on the data collected in 2014, it will be compared, where appropriate, to the 2012 sample. The 2012 sample formed part of this researcher's honours dissertation, in which the initial research instrument was constructed and tested. The questionnaires share a number of identical questions, allowing for direct comparisons. Each of these samples is cross-sectional, and although they are linked this research cannot truly claim to be longitudinal.

7.1 Descriptive Statistics

7.1.1 Demographics

Within this demographics section two entities can be clearly identified, that being the individual respondent and that of the educational institution to which they belong.

The sample collected in 2014 consists of 3033 ($n=3033$) individual respondents all under the age of 18, with a distribution of responses across gender weighted towards males (57.3% male and 42.6% female). The survey was completed in 17 schools, in 4 different provinces across South Africa. Of the schools, 10 were junior schools and 7 were high schools; of this, the majority of respondents were high school students (65.8%), while the remaining were junior school students (34.2%). Reasoning for this can be attributed to the age and grade targeted by the study. Guided by literature, only grades 6 and 7 students within junior schools were asked to participate. The ages of respondents ranged from 11 to 18, with a mean of age of 13.6 years, and a standard deviation of 1.7. Grade equally displayed a normal distribution.

Table 7 - Age and Grade distribution of respondents

Grade	N (%)	Age (in years)	N (%)
Grade 6	580 (19.1%)	11	293 (9.7%)
Grade 7	588 (19.4%)	12	567 (18.7%)
Grade 8	640 (21.1%)	13	643 (21.2%)
Grade 9	572 (18.9%)	14	595 (19.6%)
Grade 10	321 (10.6%)	15	469 (15.5%)
Grade 11	160 (5.3%)	16	217 (7.2%)
Grade 12	162 (5.3%)	17	176 (5.8%)
		18	66 (2.2%)
missing	10 (0.3%)	missing	7 (0.2%)
Total	3033		3033

Of the 17 schools, 11 were state schools and 6 were from the independent sector. One of the significant limitations of both samples was the ability to quantifiably measure the extent of the phenomenon based upon a respondent’s economic background. Children invariably are not privy to a parent’s monthly income, and so adding a question in this regard would not yield an accurate response. The premise is that children from lower income families, owing to financial constraints, may not necessarily have access to mobile technology and internet access as readily as children from higher income families. In an attempt to address this, schools were carefully selected, and then classified ordinally by their fee structure into a four tiered grouping. Although the accuracy of this classification could be challenged, it is effective in identifying broad-based trends and allows us to make certain assumptions. The four groups were initially divided in 2012 according to the following scale:

- Upper income - R37.5k and more per annum
- Middle-to-upper income – R25k to R37.5k per annum
- Middle-to-lower income – R12.5k to R25k per annum
- Lower – Less than R12.5k

In 2014 these classifications were adjusted slightly to account for an inflationary fee escalation of 10% per annum. The adjusted categories are listed in the table below (table 8). As we can see just over 37% of the of pupils fall within the lower to middle-to-lower income communities, which indicates that the sample for 2014 is slightly weighted towards middle to upper income families. Again missing and not represented in either of the samples are non-fee paying schools.

Table 8 - Categorisation of schools by fee structure

Community income	School fees per annum	2012 (%)	2014 (%)
Upper	R37.5k and more	14.1%	25.1%
Middle-to-upper	R25k to R37.5k	31.9%	37.7%
Middle-to-lower	R12.5k to R25k	25.1%	25.8%
Lower	Less than R12.5k	28.9%	11.4%

A further observation is that of the 17 schools, 5 are co-educational, a further 5 are single sex girls’ schools, while the remaining 7 are single sex boys’ schools. The number of pupils attending co-educational schools amounted to 33.4% of the total population, which is some 13% lower than the 2012 sample.

The last of the two demographic questions asked respondents to indicate their involvement in extra-mural activities and their own perception of their current academic progress. The express purpose of these questions is to investigate the relationships between academic progress, extra mural involvement and incidents of cyberbullying. Almost 85% of the respondents are frequently involved (more than twice a week) in some form of cultural or sporting activity after school. In contrast to this some 8% are only involved once a week, while 7% are not involved at all. As was the case with the 2012 sample, some 97% of pupils rated academic progress at from average to excellent, while only 3% indicate that their results are disappointing or poor. A limitation of this measure is that it can be argued that poor academic performance could be a result of bullying behaviours and cannot be used as an indicator.

Table 9 - Summary of sample demographics

Demographics	2012 N (%)	2014 N (%)
Age:		
11	66 (5.2%)	293 (9.7%)
12	289 (23%)	567 (18.7%)
13	295 (23.4%)	643 (21.2%)
14	224 (17.8%)	595 (19.6%)
15	268 (21.3%)	469 (15.5%)
16	108 (8.6%)	217 (7.2%)
17	8 (0.6%)	176 (5.8%)
18	-	66 (2.2%)
missing	-	7 (0.2%)
Grade:		
Grade 6	317 (25.2%)	580 (19.1%)
Grade 7	283 (22.5%)	588 (19.4%)
Grade 8	204 (16.2%)	640 (21.1%)
Grade 9	306 (24.3%)	572 (18.9%)
Grade 10	148 (11.8%)	321 (10.6%)
Grade 11	-	160 (5.3%)
Grade 12	-	162 (5.3%)
missing	-	10 (0.3%)
School Type:		
Boys only	465 (37%)	1275 (42%)
Girls only	209 (16.6%)	746 (24.6%)
Co-Educational	584 (46.4%)	1012 (33.4%)
School Phase:		
Junior School	658 (52.3%)	1996 (65.8%)
High School	600 (47.7%)	1037 (34.2%)

7.1.2 Internet Accessibility and Usage

Now that we have a better understanding of the demographic characteristics of the population, the second section is dedicated to eliciting information which informs us to access to digital media, the internet, and how closely they are monitored.

When asked whether they could access the internet at home, only 1.7% indicated that there was no access. This figure is significantly lower than the 2012 percentage which was reported to be 13%. Another way to describe this is that 98.3% of the sample group have access to the internet at home; and of that, almost 74% of the population was able to access the internet on two or more devices. These statistics highlight the growing availability of affordable devices and ubiquitous access to the internet. Of interest is when the means of the frequencies of where they accessed devices was compared, the bedroom (mean=2.16, std. dev.=1.22) as opposed to the study (mean=2.46, std. dev.=1.21) or living room (mean=2.82, std. dev.=1.49), was significantly higher ($p < 0.0001$). A concern then is that much of access is outside of the parent's direct visual supervision, which is often the main form of monitoring.

This was then followed by a series questions in which the perceived level of monitoring of internet access at home was recorded. The respondent's perception was that only 17% of parents or guardians actively monitored access. A further 42% indicate that this monitoring was infrequent, while 39% indicated that there was no form of monitoring in place. In contrast to the statistics in the home, 80% of respondents were able to access the internet at school, with 60% indicating that monitoring was active and frequent. These results are very similar to 2012, where 39% of respondents indicated there was no form of monitoring, while 45% of this monitoring was infrequent.

The self-same questions were then applied to the school environment, and here we find that schools display greater levels of monitoring. 60% of the respondents acknowledged that their school frequently monitor their internet access, so 26.5% said that this was only sometimes, and a further 13.5% reported no monitoring was in place.

Respondents spent a mean average of 17 hours (*std dev*=22.1) and a median average of 12 hours on the internet per week. When comparing this with the 2012 data, we can see that the general internet usage in among South African youth has increase significantly between samples. In 2014, 24.5% of respondents used the internet for 0-5 hours per week, 17.8% for 5-10 hours per week, 15.2% for 10-15 hours per week, 8.3% for 15-20 hours per week, and 34.1% for 20 hours or more per week. Reasoning for this can once again be attributed to the rapid growth of connectivity and device ownership.

Table 10: Internet usage comparison

Internet usage	2012 n=1208	2014 n=3033
0-5 hours per week	57.9%	24.5%
5-10 hours per week	24.3%	17.8%
10-15 hours per week	9.1%	15.2%
15-20 hours per week	2.0%	8.3%
20 hours or more	6.7%	34.1%

The next series of questions focused on the accessibility to a mobile device, in particular a mobile phone. The percentages from both the 2012 and 2014 samples, when compared with the Burton and Mutongwizo (2009), provide us with a longitudinal view of the growth in ownership. Although ownership amount the samples has remained relatively steady, there has been a steady growth in the percentage of phones that are able to access the internet. A total of 87% of children now own a phone that is capable of accessing the internet.

Table 11: Cell phone ownership comparison

Cell phone ownership	Burton & Mutongwizo (2009) N=1726	2012 n=1208	2014 n=3033
Yes, with internet access	47.9%	81.3%	87.2%
Yes, but no internet access	44.5%	6.2%	4.1%
Total ownership	92.4%	87.5%	91.3%

As one would expect, the increase in online activity and ownership of devices that are internet capable, has resulted in an increase in the frequency with which respondents interact online. In 2012, 58% of respondents indicate that they made frequent use of their phones (every couple of hours 23% to hourly 33%), by 2014 this had increased to 70% (every couple of hours 36.4% to hourly 33.8%). When this frequent use of cell phone was compared with more traditional forms of electronic communication, then this frequency drops dramatically. Only 29% of respondents can now be considered frequent users, and reasoning for this can be attributed to the ability of more modern devices to communicate electronically, in particular social media.

Table 12: Frequency of access

Frequency	How often do you go online to check your e-mail, visit chat rooms?	How often do you use your cell phone to make calls, SMS friends or send messages
Hourly	11.2%	36.4%
Every couple of hours	17.9%	33.8%
Once a day	18.4%	11.5%
A couple of times a day	17.8%	9.3%
Not very often	34.7%	8.9%

7.1.3 Incidents of Bullying and Cyberbullying

The first two chapters of the questionnaire have provided us a broad profile of the sample, and allowed us to look at the trends in internet usage and cell phone ownership. The following two sections focus on incidents of traditional face-to-face bullying (Section 3) and cyberbullying behaviours (section 4). The role of the perpetrator, the victim, and the bystander are clearly differentiate, because these are pivotal constructs of the study. With this distinction we are able to track trends and falsify the hypothesis.

When asked about incidents of traditional face-to-face bullying, 29% of respondents indicate that they had been victims of bullying or harassment in the previous two months. Similarly, 18% acknowledged that they had been instigators of bully incidents, and some 60% indicate that they had witnessed incidents. These statistics are in agreement with the 2012 data, with the exception of the bystander where witnessed incidents drop from 69% (2012) to 60% (2014). Reasoning as to the drop would be speculative, but this trend will need to be monitored in future studies, as this may point to a greater need for bully awareness programmes. Reasoning for the greater levels in the bystander percentages as compared to victim and bully, could, however, either be attributed to a misinterpretation of a situation or, more plausibly, single incidents being witnessed and reported on by multiple bystanders.

Table 13: Traditional bullying incidents

Traditional bullying	2012			2014		
	<i>Victim</i>	<i>Bully</i>	<i>Bystander</i>	<i>Victim</i>	<i>Bully</i>	<i>Bystander</i>
Never	76.3%	70.7%	30.8%	71%	81.9%	39.4%
It has only happened once	17.5%	17.6%	20.5%	15.2%	12%	23.6%
It has happened twice				4.9%	2.5%	11.5%
It has happened three times	2.9%	4.5%	8.8%	4.1%	1.8%	9.6%
About once a week	1.4%	2.5%	17.9%	2%	0.7%	7.6%
Several times a week or more	1.9%	4.7%	22%	2.8%	1.2%	8.2%

To further summarise the data in a meaningful way, three of the points (*It has happened three times; About once a week; Several times a week or more*), were combined to create a composite percentage, which reflected frequent incidents. This was then compared across the data sets and across the categories (victim; bully; bystander). What was immediate evident, which is of concern, and was evident in 2012, is the number of respondents that were bullied on a regular basis. 9% (8.9%) indicated that they were bullied several times a month, with 4.8% of that being victimised on a weekly basis. When we compare this to 2012, we can see that there has been an increase in frequent traditional bullying of 2.7%, which is statistically significant ($p= 0.0275$).

In a comparison between incidents as reported by the victim and the bully, the 2012 data shows an interesting anomaly, where there were more self-reported traditional bullies than victims; 11.7% self-reported themselves as 'frequent' bullies which was twice the rate of the frequently victimised (6.2%). This, however, was not evident in the 2014 data set; in fact the 2014 data displayed the exact opposite, and only 3.7% self-reported, this is almost half that of the frequently victimised (8.9%) and is significantly different ($p<0.0001$).

Table 14: Traditional versus cyberbullying incidents in the previous two months

	Traditional bullying			Cyberbullying		
	<i>Victim</i>	<i>Bully</i>	<i>Bystander</i>	<i>Victim</i>	<i>Bully</i>	<i>Bystander</i>
Never	71%	81.9%	39.4%	84.8%	93.4%	65.4%
It has only happened once	15.2%	12%	23.6%	9.2%	4.1%	18.7%
It has happened twice	4.9%	2.5%	11.5%	2.4%	1.2%	5.8%
It has happened three times	4.1%	1.8%	9.6%	1.7%	0.3%	4.1%
About once a week	2%	0.7%	7.6%	1%	0.5%	3.1%
Several times a week or more	2.8%	1.2%	8.2%	0.9%	0.5%	2.8%

By contrast, 13.5% of respondents indicated that they had been victims of cyberbullying, with frequently victimised making up only 3.6% of the overall sample. Only 6.6% self-reported that they felt they had been a cyberbully, with self-reported frequent cyberbullies making up only 1.3% of the sample. The encouraging sign is that incidents of cyberbullying have dropped 0.9% overall since 2012.

However, the self-reported and self-acknowledged cyberbullying, like the traditional bullying statistic, has dropped. When compared to the 2012 sample, overall the statistic has drop 0.5%, and frequently self-reported cyberbullying is now 1.3%, almost half of what it was in 2012 (2.4%). Although not statistically significant ($p= 0.0702$), it is a concern when viewed in light of the significant drop in self-report incidents of traditional bullying. Reasoning for this could be attributed to two possible causes. Firstly, owing to the distance in both time and space (as outlined in Social Presence Theory), messages which have no intention of doing damage are being misinterpreted. The impact on the recipient goes unnoticed and could therefore be reported as victimisation but not acknowledged as bullying. However, this is an innate characteristic of bullying using electronic media, and so would have been an influencing factor on the 2012 data. A second reason is that, awareness efforts are either non-existent or ineffective. This statistic on its own is not a reason for concern, but because we observe the same trend in both forms of bullying, the later seems to be the most plausible explanation.

Table 15 - Cyberbullying incidents

Cyberbullying incidents	2012			2014		
	<i>Victim</i>	<i>Bully</i>	<i>Bystander</i>	<i>Victim</i>	<i>Bully</i>	<i>Bystander</i>
Never	83.9%	92.9%	68.2%	84.8%	93.4%	65.4%
It has only happened once	12.4%	4.7%	19.7%	9.2%	4.1%	18.7%
It has happened twice				2.4%	1.2%	5.8%
It has happened three times	1.4%	0.9%	5.6%	1.7%	0.3%	4.1%
About once a week	1.3%	0.5%	2.8%	1%	0.5%	3.1%
Several times a week or more	1%	1%	3.6%	0.9%	0.5%	2.8%

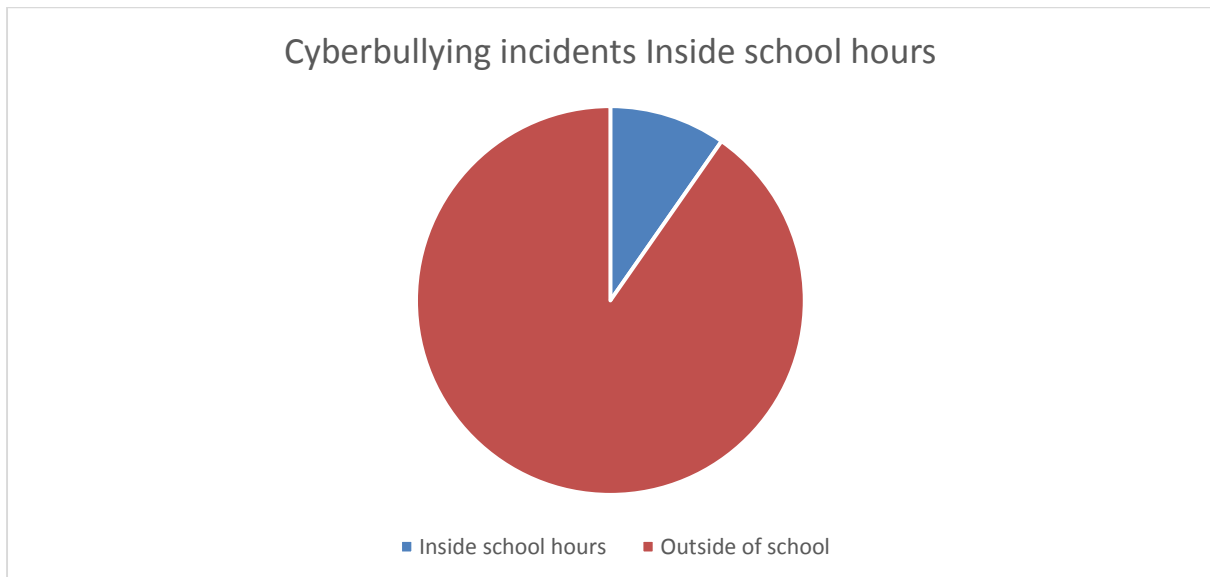
Witnesses to cyberbullying amounted to 34.5% of the sample, almost half that of the traditional face-to-face bullying witnesses. Reasoning for this can once again be attributed to the nature of the electronic communication and the time of day. When the pupils were asked where this cyberbullying had taken place, the overwhelming number of respondents reported that incidents took place outside of school time and away from most of their peers. Additionally when if a person receives a message in a public area (ie a classroom), the contents of the message and its impact will be private and thus hidden from people around the victim. This is not the case in traditional bullying, where the act is publicly viewable, as is the reaction to the communication.

Table 16 - Cyberbullying incidents BY frequency

	2012	2014
Never	83.9%	75.5%
Infrequent	12.4%	10.3%
Frequent	3.8%	3.2%

Respondents also indicated that the overwhelming majority of these cyberbullying incidents occurred outside of school hours. 90% of victims reported that incidents occurred outside of school hours, while only 10% took place at school.

Figure 6 - Cyberbullying outside of school hours (n=416)

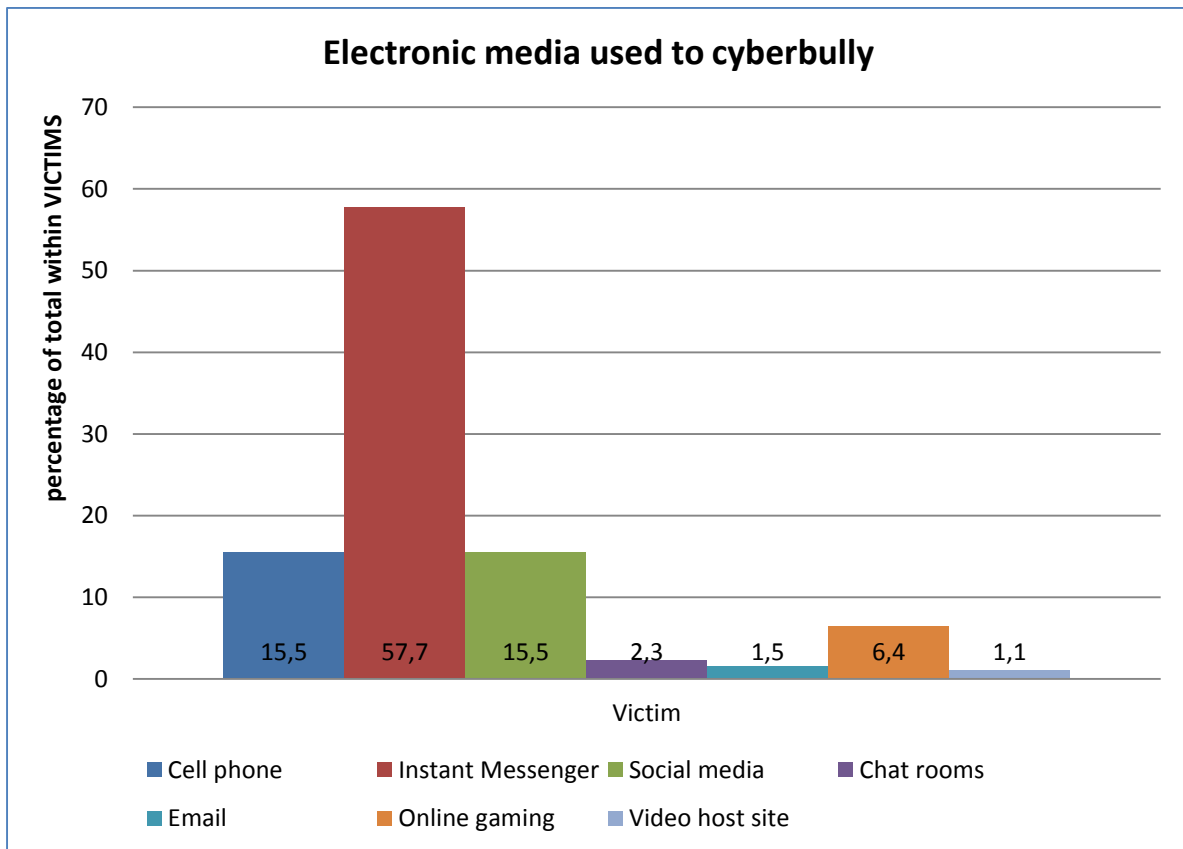


7.1.4 Cyberbullying and Impacts

The overwhelming majority of respondents reported that incidents occurred outside of school time (317 responses to 67). These results were evident in the 2012 data and are equally reported upon in related literature. These results speak to the very nature of the phenomenon and the ability of the perpetrator to reach beyond the school yard and target someone at any time.

When asked to identify the type of media used, respondents indicated that instant messaging services (WhatsApp, Blackberry Messaging Service, Mxit remain the overwhelming weapon of choice (figure 6). This is an interesting choice of media, because in order to use this service the identity of the sender of the message is known, and so therefore anonymity does not play a role. Reasoning for this is that many users do not feel that they are closely monitored and are therefore able to do and say what they want.

Figure 7 - Electronic media used to cyberbully (n=3033)



The impact of cyberbullying upon victims was recorded in a series of questions, which will be combined and impact index will be calculated. This new index will then be used, in the following section of this dissertation, to order to compare victims and frequent victims.

When respondents were asked if the identity of the perpetrator was known to them, almost 75% of cyberbullies (396 out of 533) were known and the remaining 25% were unknown. This indicates that anonymity plays a major role in this phenomenon, where was in traditional bullying the identity of the perpetrator would almost certainly be known. This too was reflected in the 2012 data where anonymity too played a role.

7.1.5 Cyberbullying Coping Strategies

The final element of the descriptive statistics deals with the victims coping strategies.

72% of all pupils indicated that they knew strategies that could ensure their safety online. When asked how they acquired these safety strategies, most pupils indicated that they were self-taught (806 pupils) or taught by their parents (897). Some learnt from school (695) while far fewer learnt from their friends (366).

When cybervictims were asked what coping strategies they employed, the only a third indicated that they either did nothing about it (35.3%) or told the bully to stop (32.5%) or changed privacy settings (37.9%). They also indicated that they were more likely to confide in a friend (44.3%) or tell no one (47%), than tell an adult (30.7%).

8 Inferential Statistics

8.1 Relationship between the perceived impact of cyberbullying and repeated incidents

As has been outlined, the key characteristic of repetition, which is present in many cyberbullying definitions, is in question. An argument was laid out in the literature review, and an adjusted definition has been proposed. Repetition has been reduced, along with the impact on the victim, to that of a subsidiary to cyberbullying behaviour, as opposed to a key characteristic. In order to validate this claim the relationship between the impacts as perceived by the victim must be compared to incidents of repeated bullying.

To gauge the impact of cyberbullying, a series of ten questions was presented to victims of harassment online (Q36_1 to Q36_10). A reliability analysis test (Cronbach alpha of 0.898) revealed that these particular measures are a particularly good fit. A factor analysis was then used to combine these questions to calculate a new index. The lower the index, the less impact, the higher the index, the more impact the incident had on the victim. One of the questions Q31_9 (*It doesn't bother me*), was positively framed and so the value was reversed before the new impact index could be computed.

The means of frequent/infrequent victims, which were identified in the previous section, were compared. This was done in order to investigate if frequent victims felt a greater impact than infrequent users. The result was that there was no significant difference in the impact experienced by victims of repeat cyberbullying incidents ($m=-0.0596$, $sd=1.08$) as opposed to infrequent victims ($m=0.1996$, $sd=0.97$); $t(341)=0.624$, $p=0.533$. It is for this reason that the null hypothesis is accepted. The perceived impact on victims of cyberbullying is felt equally despite the frequency, and this lends weight to the exclusion of repetitiveness from the definition of the phenomenon. Victims of cyberbullying experience similar levels of impact, irrespective of whether the incident was only once or twice or whether it is weekly or daily.

Table 17 - Perceived impacts and cyberbullying

	Perceived Impact on Victim			
	n	mean	Std. dev	t-test
Infrequent	311	0.91	1.02	t(405)=0.429, p=0.668
Frequent	96	0.14	1.07	

8.2 Gender differences in cyber victim/bullying

The relationship between gender and incidents of cyberbullying has not been definitively agreed upon within literature. Although a number of the initial studies pointed to gender as a predictor, later studies do not agree.

To test the difference in incidents by gender, all incidents were grouped, and a Chi-Squared test was used to test the null-hypothesis of categorical independence. The test indicated that there was a significant effect of gender, with girls significantly more likely overall to be both victim ($\chi^2=17.679$, $p<0.0001$) and bystander ($\chi^2=35.284$, $p<0.0001$). The difference by gender was equally pronounced and statistically significant in traditional bullying. Of interest is that there was no statistical significance by gender in self-reported bullies in both traditional bullying and cyberbullying.

Table 18 - Gender bias in bullying incidents

Number of incidents by	All Respondents	Traditional Victim	Traditional Bully	Cyber Victim	Cyber Bully
Female	1288 (42.6%)	408 (51.8%)	209 (42.5%)	219 (53.5%)	69 (39.7%)
Male	1739 (57.3%)	380 (48.2%)	283 (57.5%)	190 (46.5%)	105 (60.3%)
Total	3033 (100%)	788 (100%)	492 (100%)	409 (100%)	174 (100%)
<i>χ^2 value</i>		27.713	0.492	17.679	1.506
<i>p-value (df=1)</i>		<0.0001	0.483	<0.0001	0.220

The statistical significance present in this data was equally present in the 2012 data. Girls were again more likely to be both victim ($\chi^2=9.332$, $p=0.0023$) and bystander ($\chi^2=8.435$, $p=0.0037$) in incidents of cyberbullying. Based on the results of the data the null-hypothesis of no gender impact must thus be rejected and girls are more likely to be cyber victims and bystanders.

Investigating the relationship between gender and cybervictimisation can be taken a step further, and the relationship between co-educational and single sex girls schools can be tested at an institutional level. The 2012 data revealed a potential link, in that girls from single sex schools appeared to experience higher levels of cybervictimisation, and the need for further investigation was noted. Once again to test the difference in incidents by institution a Chi-Squared test was used to test the null-hypothesis of categorical independence. The test indicated that there was no significant effect of institution, and girls in single sex schools no more likely to be victim ($\chi^2=0.06$, $df=1$, $p=0.806$) or bystander ($\chi^2=0.549$, $df=1$, $p=0.459$) as compared to girls in co-educational school. The only statistical difference which was revealed is that girls in single sex schools are more likely to self-report cyberbullying ($\chi^2=8.028$, $p=0.005$). This on its own is subject to bias as the sample is too small to draw conclusions. We will therefore accept the null-hypothesis, and draw the conclusion that girls in single sex schools are no more likely to be cyber victims or bystanders.

Table 19 - Cybervictimisation rate by school type (n=3033)

Cybervictim rate	Single Sex School	Co-ed School	Total
Female	131/698 (18.7%)	87/478 (18.2%)	218/1176 (18.5%)
Male	142/1011 (14.0%)	49/416 (11.7%)	191/1517 (12.5%)
Total	273/1709 (15.9%)	136/894 (15.2%)	409/2693 (15.1%)

8.3 Age/Grade group differences in cyber victim/bullying

Tokunga (2010), in a meta-synthesis of the then current literature, despite inconsistencies in research, indicates that there is indeed a curvilinear relationship between age and incidents of cyberbullying. He further posits that the greatest frequency of victimisation occurs between 12 to 14 years of age. This relationship was certainly present within the 2012 data were there was a significant effect by both age ($F=2.144$, $p=0.046$) and grade ($F=4.836$, $p=0.001$) on victimisation.

To test the difference in incidents by age and grade an ANOVA test was used to compare the means. The result indicate that there is no significant effect of either age ($F=0.695$, $p=0.677$) or grade ($F=1.263$, $p=0.271$). Thus the null-hypothesis of no age/grade correlation is accepted.

Figure 8 - Means of Cyber Victimization and Bullying BY AGE

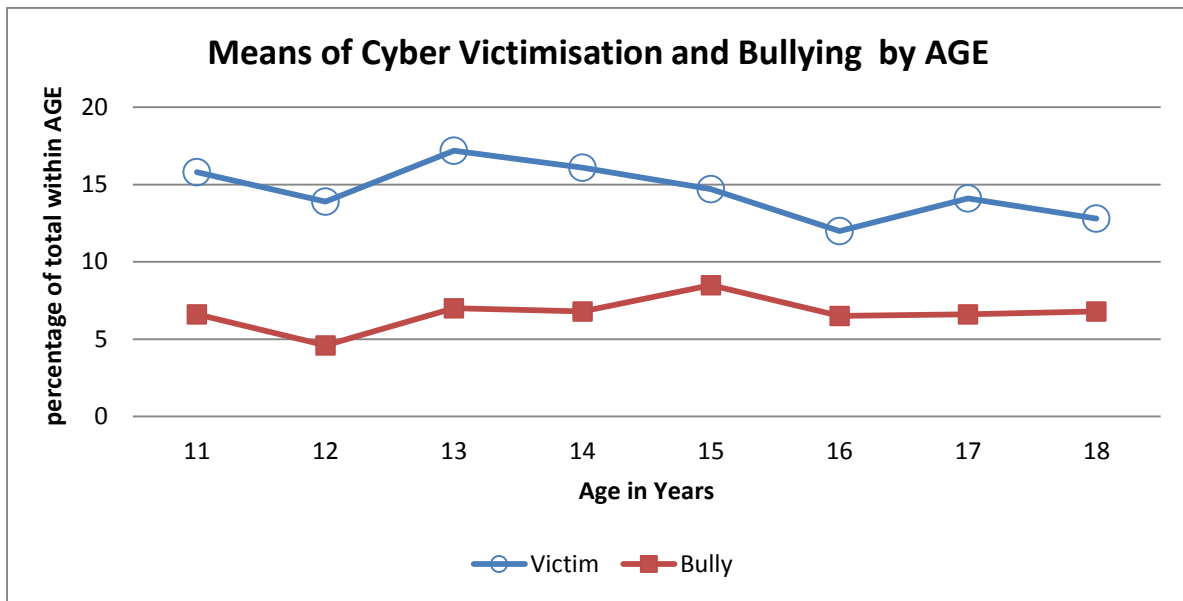
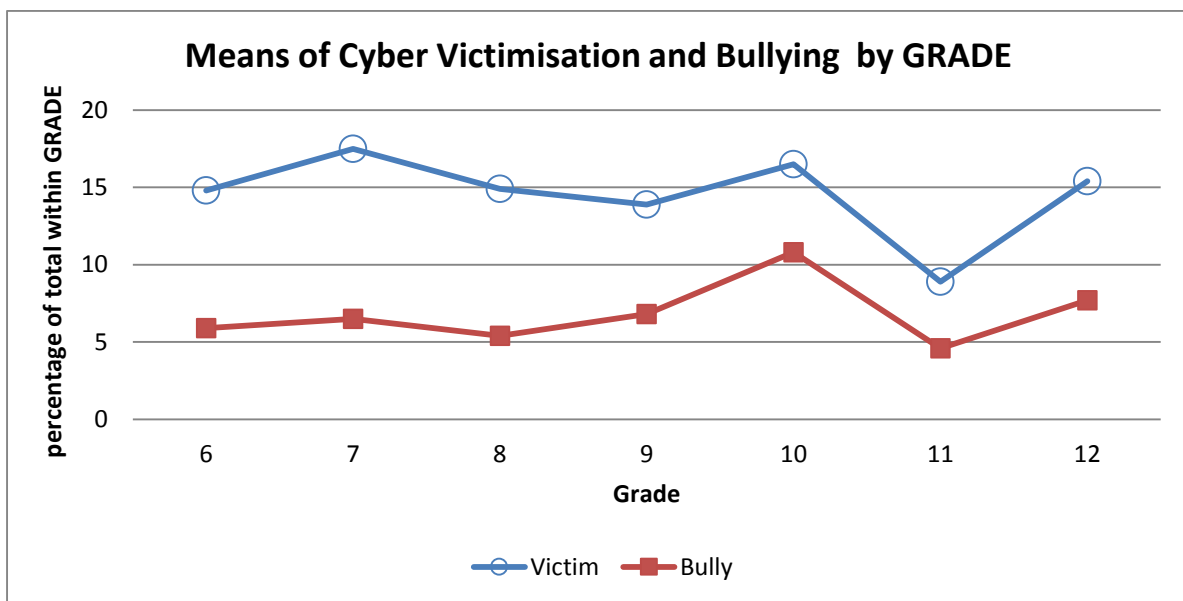


Figure 9 - Means of Cyber Victimization and Bullying BY GRADE

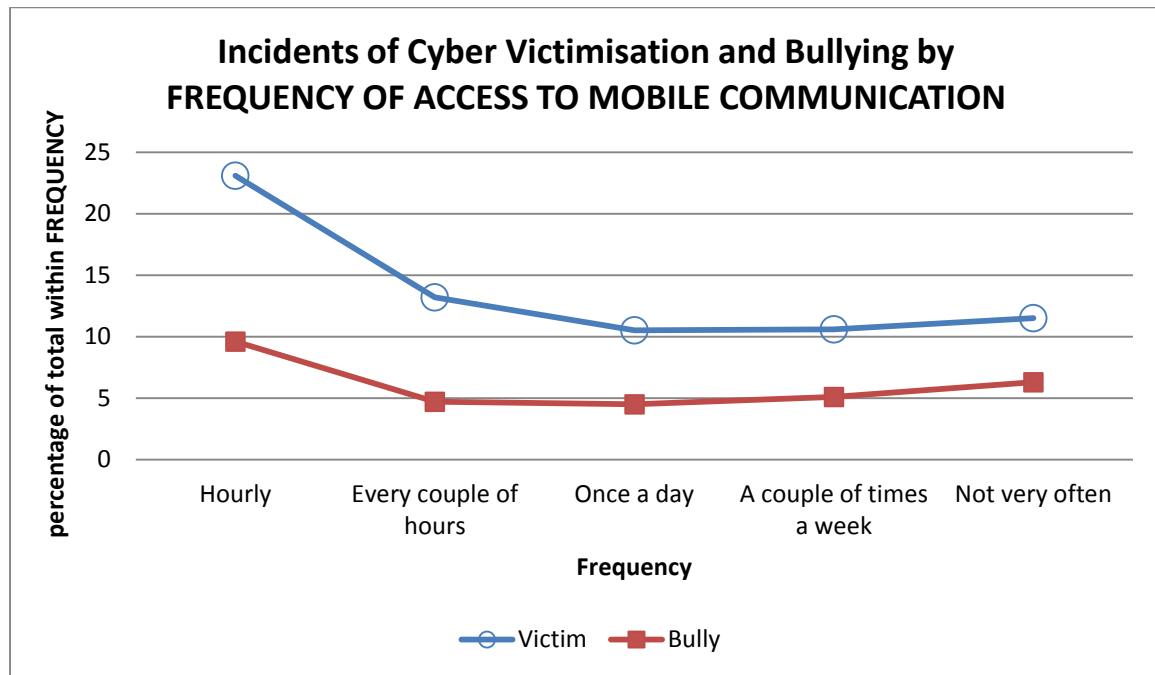


8.4 Internet use and involvement as cyber victim/bully

As had been reported upon in the descriptive section of this dissertation, only 13 respondents (0.5%) do not have access to the internet at home or via a cell phone. In order to test the difference in incidents by both amounts of time spent on the internet and frequency of access an ANOVA test was used to test the null-hypothesis. The test revealed that there is statistical significance, the greater the

amount of time spend using the internet the greater the chance of being a cybervictim ($F=26.919$, $p<0.0001$) and cyberbully ($F=23.280$, $p<0.0001$). The same is true of frequency of access where someone who access the internet often to communicate via mobile phone is more likely to be a victim ($F=32.986$, $p<0.0001$) and bully ($F=6.857$, $p=0.009$). The null-hypothesis is rejected, users that spend more time on the internet and access the internet more frequently, are more likely to be victims and cyberbullies.

Figure 10 - Means of Cyber Victimization and Bullying BY FREQUENCY OF ACCESS



8.5 Relationships between traditional bullying and cyberbullying

The relationship between traditional bullying factors and cyberbullying factors has been well established in research, and is certainly one where statistical significance is the most widely replicated. It stands to reason that those that resort to bullying in a traditional environment, irrespective of the causes, would extend their influence through the use of technology. Digital communication is the new weapon of choice, and this was evident in this sample. In the table below (table 19), traditional victims are cyber victims, traditional bullies are cyberbullies, and there are also a significant number of

traditional victims that are cyberbullies. For this reason the null-hypothesis is rejected and the hypothesis that traditional bullying factors influence cyberbullying behaviour is accepted.

Table 20 - Traditional bullying factors versus cyberbullying factors

	Not a cybervictim	Cybervictim	Chi-Squared, p (df=1)
Not a traditional victim	1750 (91.4%)	165 (8.6%)	$\chi^2=218.626$ $p<0.0001$
Traditional victim	538 (68.9%)	243 (31.1%)	
	Not a cyberbully	Cyberbully	
Not a traditional bully	2083 (96.7%)	71 (3.3%)	$\chi^2=211.687$ $p<0.0001$
Traditional bully	374 (78.4%)	103 (21.6%)	
Not a traditional victim	1799 (96.2%)	72 (3.8%)	$\chi^2=80.386$ $p<0.0001$
Traditional victim	657 (86.6%)	102 (13.4%)	
Not a cyber victim	2172 (96.4%)	81 (3.6%)	$\chi^2=233.809$ $p<0.0001$
Cyber victim	282 (75.2%)	93 (24.8%)	

When these results are compared to the 2012 sample, we see a very similar set of results, but what is of interest is that there has been a 7% increase in the number of self-acknowledged traditional bullies and cyberbullies. This may very be an indication that the number of traditional bullies who are now adding cyberbullying to their arsenal, could be on the increase, but this trend will need to be monitored over time.

The importance of these findings cannot be under-estimated, as they are critical indicators which must be considered in the establishment of targeted educational strategies. Some 60% of cyberbullies are also traditional bullies, lending weight to the argument that strategies should address both elements of the behaviour. Equally, some 60% of cybervictims are traditional victims, however, there is a significant number of cybervictims (165, 8.6%) that are not. That means a full 40% of cybervictims do not fall into the traditional victim category. Likewise of interest is the small but significant contingent that only cyberbully (71, 3.3%). The cross-tabulations confirm that there are a both strong similarities, and very unique characteristics, validating the need for very specific research into the phenomenon.

A further, and final, relationship which will need to be noted is the number of cyberbullies that are traditional victims, but that do not resort to traditional bullying (26, 5.6%). Concerns have been raised, with the reasoning that those resort to only to cyberbullying and not traditional bullying, may suffer increased impact. However, a comparison of the perceived impact means indicates no real significance ($F=2.153, p=0.147$).

8.6 Relationship between economic factors and cyberbullying

The schools were divided into four distinct economic categories based upon the schools fee structure, and this served as a rough proxy to the income level of their feeder community. It must be noted that this is a rough guide and the results should only be treated as an indicator. To test the difference in incidents by economic factors, an ANOVA test was employed to test the null-hypothesis for significance. The results indicate that there is no significance of difference on victimisation ($F=6.830$, $p=0.078$), but there is a significant difference in cyberbullying behaviours ($F=16.780$, $p=0.001$). Students in lower income families are more likely to be instigators of cyberbullying behaviour. These results are in contrast to the 2012 results, where there was a significant difference ($F=5.618$, $p=0.001$) in victimisation. Students from middle income families were more likely to be victims of cyberbullying and lower income families were less likely to be victimised. Although the trends in economic factors will require further monitoring, the null-hypothesis is accepted, and there appears to be no association between economic factors. The significance in difference can be attributed to sampling.

8.7 Relationship between academic progress and cyberbullying

The students were then asked to rate their academic progress, and although this is once again a rough indication, it is the students perception of academic progress which is of importance in this regard. Of interest is that only 3.6% of the sample rated their progress as below average or disappointing, whereas 14.9% saw themselves as excellent. An interesting finding is then that those that rated themselves as academically poor or below average were more likely to be both victims and perpetrators of cyberbullying. In cases where students perceived their progress as below average victimisation was a third higher, and self-reported cyberbullying was double. In the extreme case of students whose performance was poor, victimisation was double and self-reported cyberbullying was triple. Similar findings were evident in the 2012 data, where students with a poor or below average academic record were also more likely to be both cyber victims and cyberbullies.

Table 21 - Academic progress and cyberbullying

Number of incidents by	All Pupils	Traditional Victim (n=788)	Traditional Bully (n=490)	Cyber Victim (n=409)	Cyber Bully (n=173)
Excellent	453 (15.3%)	128 (16.2%)	84 (17.1%)	61 (14.9%)	21 (12.1%)
Good	1463 (49.3%)	402 (51%)	223 (45.5%)	194 (47.4%)	79 (45.7%)
Average	944 (31.8%)	230 (29.3%)	157 (32%)	132 (32.3%)	58 (33.5%)
Below Average	77 (2.6%)	20 (2.5%)	19 (3.9%)	13 (3.2%)	11 (6.4%)
Poor	29 (1%)	8 (1%)	7 (1.4%)	9 (2.2%)	4 (2.3%)
Total	2966 (100%)	788 (100%)	490 (100%)	409 (100%)	173 (100%)
χ^2 value		4.027	9.090	10.775	17.084
p-value		0.402	0.059	0.029	0.002

8.8 Relationship between active guardianship and cyberbullying

As has been presented in the research objectives, Reynald (2013, p.62) presents a set of variables by which the level of active guardianship can be measured. He refers to the as guardianship in action and identifies a four point continuum: *Invisible* (no guardianship available); *Available* (guardianship available); *Monitoring* (guardianship available and actively monitoring); *Intervening* (available, monitoring and intervening). The main constructs of this continuum hinge on the three main factors of whether guardianship is *available*, whether *monitoring* is active, and if guardians are *intervening*. A series of questions (Q11 to Q14) were constructed, and were used to classify the respondents.

If a respondent indicated that there was no monitoring or it is infrequent (Q11), and there were no rules governing internet usage (Q12), then guardianship was deemed *invisible*. If a respondent indicated that there was infrequent monitoring (Q11), but that there were rules (Q12), then this was classified as *available* guardianship. If a respondent indicated that there was frequent monitoring (Q11) and that there were rules governing usage (Q12), but that there were consequences to breaking the rules (Q14), then this was classified as *monitoring*. If a response indicated that rules were in place (Q12), that monitoring was frequent (Q11), and that there were consequences (Q14), then this was classified as *intervening*.

Table 22 - Classification

Classification	SPSS IF Syntax for classification	Cyber Victim (n=409)	Cyber Bully (n=174)
<i>Invisible</i>	(Q11=2 & Q12=2) (Q11=3 & Q12=2)	121 (31%)	60 (36.8%)
<i>Available</i>	Q11=2 & Q12=1	225 (57.7%)	86 (52.8%)
<i>Monitoring</i>	Q11=1 & Q12=1 & (Q14=3 Q14=4 Q14=5)	9 (2.3%)	4 (2.5%)
<i>Intervening</i>	Q11=1 & Q12=1 & (Q14=1 Q14=2)	35 (0%)	13 (8%)
Total		390 (100%)	163 (100%)
		χ^2 value = 5.269 p=0.153	χ^2 value = 6.047 p=0.109

Although the intervening and monitoring categories report lower than expected values, a Chi-Squared test did not reveal a significant difference. Reynald (2013) argues that deviant behaviour will decrease in the presence of active monitoring, where there is appropriate and immediate intervention. This certainly appears to be the case within these results, but owing to the test result the null-hypothesis is accepted, but further investigation will need to be conducted into what effective active monitoring might be. If, however, we combine *Invisible* and *Available* and then compare them to the grouping of *Monitoring* and *Intervening*, we see a significant difference ($\chi^2=4.628$, $p=0.031$).

8.9 Relationship between self-control and cyberbullying

In the literature review, the theory of self-control and the theory of rational choice, were highlighted as possible root causes for deviant behaviour online. The reasoning for this is that much of a child's online activity occurs on a mobile phone or a device out of sight from a parent or adult guardian. And so the level of self-control a student has developed will assist them in resisting the urge to act. They would be able to weigh up the potential costs of the action and refrain.

To gauge whether the level of self-control is indeed an influencing factor, a series of six questions was constructed. It is important to note at this stage that a distinct limitation of this study is that it does not intend to be a comprehensive study on the development of self-control, but to identify indicators and thus open up avenues for further research. A reliability test produced a Cronbach alpha of 0.524, and these measure would need to be developed further. Three of the questions Q7_3, Q7_5 and Q7_6, were negatively framed and the value was reversed before the new index was computed. A factor analysis was then used to combine these questions to calculate a new composite index. A lower index indicates lower levels of self-control. A higher index indicates greater levels of self-control.

An independent sample t-test was used to compare the means of self-reported cyberbullies and a statistical difference was evident. Students that indicated that they generally had lower levels of self-control, were significantly more prone to both cyber victim ($t=5.415$, $p<0.0001$) and cyberbully ($t=3.575$, $p<0.0001$).

Further to this the major constructs of the theory of self-control were tested. Gottfredson and Hirschi (1990) suggested four factors which influence the development of self-control, viz: the level of attachment between the parent and child (Q8), the level of parental supervision (Q11 and Q12), the ability of parents to identify deviant behaviour (Q15), and the extent of the resultant punishment (Q14). Initially a correlative analysis was employed to investigate the relationship between the constructs and the self-reported self-control index. There was a positive correlation between each of the variables and the self-control index, which indicates that these factors could be influencing the development of self-control. Once again this research is limited, but this does open up an avenue of research that would focus on this area.

Table 23 - Factors of Self-Control compared to Self-Control Index

	Self-reported self-control index r, n, p
Q8: How do you get along with your parents/caregivers?	r=-0.294, n=2953, p<0.0001
Q11: When at home, do your parents/caregivers monitor your internet access?	r=-0.203, n=2839, p<0.0001
Q12: When at home, are there rules about what you can and cannot do online?	r=-0.125, n=2819, p<0.0001
Q14: When at home, if you are caught breaking the rules, are you punished?	r=-0.128, n=2025, p<0.0001
Q15: When at home, what is the risk of being caught doing something inappropriate online?	r=-0.077, n=2797, p<0.0001

A correlative bivariate analysis of the individual constructs (figure 10) revealed further findings. The results indicate that there is a strong correlation between the respondents relationship to their parent/guardian, and both cyber victimisation ($p<0.0001$) and cyberbullying ($p<0.0001$). Students who reported that they go on very well with their parents are less likely to be involved in or subject to online incidents. Students that had a poor or very poor relationship with their parents constituted almost three out of every five victims (59.2%) and half of self-reported bullies. This highlights the need for an open and honest relationship between child and parent, and it is an indicator to the level of attachment between the parent and child (Q8).

Figure 11 - Relationship to parents and cyberbullying

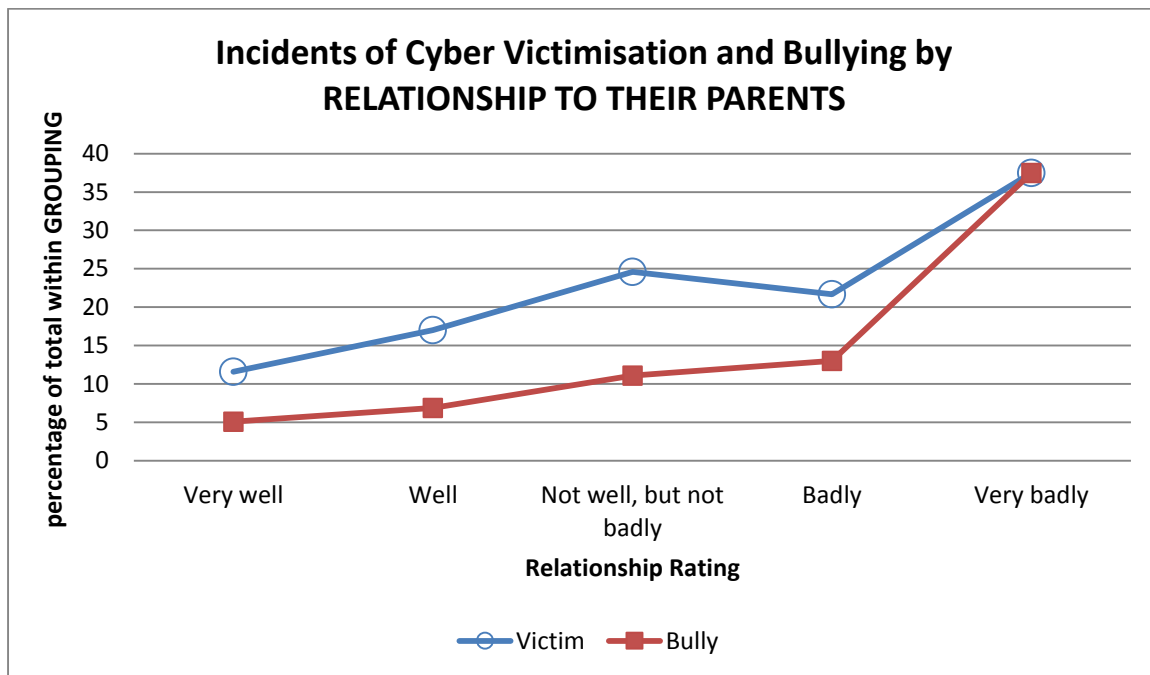


Table 24 - Incidents compared to RELATIONSHIP WITH PARENT

There was equally a significant relationship between self-reported cyberbullying and monitoring of the internet (Q11), and the rules that are in place (Q12), which speaks to the level of adult supervision ($p=0.005$ and $p=0.035$). The extent of the resultant punishment (Q14) likewise showed a significant difference ($p=0.031$). There was, however, no significant difference between the ability of parents to identify deviant behaviour (Q15) and incidents, which could indicate that parents struggle to identify deviant behaviour. It could also indicate that parents that identify deviant behaviour do not punish adequately or, which is more plausible, the resultant punishment is not enough of a deterrent to deviant behaviour.

Table 25 - Correlative Analysis of Self-Control Factors and cyber victimisation and cyberbullying

	Cyber victim (n=409)	Cyberbully (n=174)
Q8: How do you get along with your parents/caregivers?	r=0.120, n=2697, p<0.0001	r=0.101, n=2630, p<0.0001
Q11: When at home, do your parents/caregivers monitor your internet access?	r=-0.008, n=2649, p=0.699	r=0.055, n=2586, p=0.005
Q12: When at home, are there rules about what you can and cannot do online?	r=0.14, n=2629, p=0.480	r=0.042, n=2566, p=0.035
Q14: When at home, if you are caught breaking the rules, are you punished?	r=0.48, n=1924, p=0.036	r=0.050, n=1877, p=0.031
Q15: When at home, what is the risk of being caught doing something inappropriate online?	r=0.023, n=2637, p=0.231	r=0.016, n=2575, p=0.418

8.10 Summary and other relationship

A discriminant analysis summarises the findings neatly, and also reveals some additional interesting findings. The table below shows the statistical significance (p-values) of various variables in discriminating against any or habitual (=several times per month) cybervictims/bullies.

Table 26 - Statistical significance of variables to discriminate bullying phenomenon (*=significant at 5% confidence)

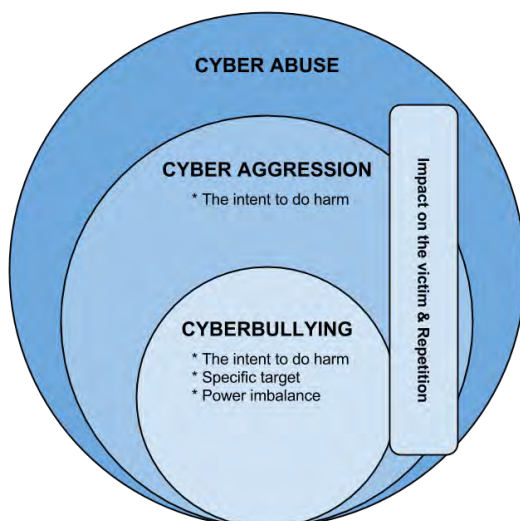
	CyberBully		CyberVictim	
	All (n=174)	Frequent (n=34)	All (n=409)	Frequent (n=96)
Q1: Gender	0.335	0.022	<0.0001	<0.0001
Q2: Grade	0.939	0.048	0.012	0.448
Q3: Age	0.796	0.088	0.064	0.345
Q5: Academic progress	0.167	0.262	0.450	0.994
Q6: Extramural activities	<0.0001	0.930	0.513	0.267
Q11: Parent monitor internet	0.013	0.338	0.403	0.766
Q17: Teachers monitor internet	0.010	0.672	0.751	0.129
Q26: Hours spent online	0.001	0.018	0.001	0.173
Q23: Pupil owns cellphone	0.916	0.887	0.021	0.938
Q22: Online frequency	0.032	0.815	<0.0001	0.257
Q24: Cell use frequency	<0.0001	0.547	<0.0001	0.288

The table about confirms many of the relationships which have been raised in the descriptive and inferential chapters of this dissertation. In addition to this, the table also highlights the significant relationship between active monitoring and cyberbullying. Where active monitoring is present, in both the school and home environment, respondents were significantly less likely to engage in deviant behaviour. The analysis equally highlights the significant relationship between the amount of time spent online and both victimisation and bullying. The greater amount of time spent online, the greater the risk of being involved in and being subject to cyberbullying. The frequency of access likewise stands out as a significant discriminator. Gender, as has been mentioned is an indicator, while age and grade effect cyber victimisation.

9 Discussion of Findings

Bullying of any kind can have a traumatic emotional or physiological impact on its victim, and since the 1970's academic efforts have focused on trying to understand and devise interventions which educate children and limit incidents. To a large extent these have shown success, but with the advent of the internet and in particular social media, a new form of harassment has emerged. Cyberbullying shares many of its major characteristics with traditional bullying, and this is certainly evident in this study, where there is a significant link between the two. There are, however, a number of equally significant differences, which make it critical that we distinguish between the two and commit independent research to this new phenomenon. Cyber victimisation leads to, amongst other things feelings of anguish, distress, fear and depression, and in a single case in the 2012 sample, suicidal ideation. These feelings are shared by victims of repeated traditional bullying, but in cyberbullying these can be felt after only a single incident. Many of the definitions to-date have adopted the key characteristic from traditional bullying of *repetition*. This research, however, indicates, that owing to anonymity and the potential limitless audience available, repetition should not be used, but rather reduced to a subsidiary. Instead the intent to do harm, the imbalance of power, and the presence of a specific target should form key characteristics. The figure below, proposed in the literature review, provides us with a continuum by which we can classify behaviours. It is only with a clear and standardised definition that we can further co-ordinate research endeavours into this phenomenon.

Figure 12 - Continuum of Cyber Behaviours



The results support the hypothesis that gender has a significant effect on the reported incidents of cyberbullying, with girls more prone to cyberbullying than boys. In the 2012 data there was also an indication that incidents in girls' single-sex schools could be more prevalent, but the results of 2014 data did not support this finding. This potential effect should not be discarded, but will need to be noted in further research. This finding, as was the case in 2012, contradicts current cyberbullying research, which reports no direct correlation between gender and cyber victimisation (Burton & Mutongwizo, 2009; Hinduja & Patchin, 2006 & 2008; Li, 2006)

The results, when comparing 2012 and 2014, are, however, inconclusive with regards both age and grade as a significant effect. The data from 2012 indicates that respondents between the ages of 12 to 14 are significantly more likely to be both victims and bullies online, while the 2014 results show no such relationship. Tokunaga (2010), based on the meta-synthesis of the then current literature, argues that despite inconsistencies in the data, a curvilinear relationship with age is present. This argument would certainly be confirmed by this research, in that despite the lack of a significant relationship, the results do demonstrate the curvilinear relationship. Although the curvilinear relationship is evident, reasoning for the lack of a significant relationship between age and incidents could be owing to larger pool of data from varying school, or alternatively it could be owing to more effective awareness programmes being run in schools.

It comes as no surprise that the greater the amount of time which a user spends online, the more likely they are to be effected. In addition to this, the greater the frequency that they check email and communicate via cell phone, the more susceptible they are to these behaviours. The results do also indicate that there has been a significant increase the amount of time on average that a youth spends on the internet. However, despite this increase there has not been an increase in the rate of incidents, which is encouraging.

The results also validate literature, and indicate that there is a significant relationship between traditional and cyberbullying. Traditional bullies are online bullies, and traditional victims are victims in the online world. There are, however, a number of worrying respondents who were not traditional bullies, but they were bullies online (31 or 3.3%), and some who were traditional victims, and responded by being online bullies (102 or 13.4%). This means that although interventions and education should target both traditional and cyberbullying, it needs to assist children in dealing with situations so that they respond in an appropriate manner. There is an implication here for educational institutions and schools, who will need to adapt current awareness and educational programmes to address these perpetrators. In particular they need to develop strategies which will not only assist traditional victims that begin bullying online, but make them aware that these actions are not justified.

One of the more important findings of this research is the relationship between the role of active guardianship, self-control and cyberbullying. One of the primary objectives of this study was to investigate the relationship between active guardianship and cyberbullying behaviours. The difficulty is that there is no framework within in which to start measuring these influences. For this reason, from the field of criminology, Reynald's (2013, p.62) variables by which he recommends we can measure active guardianship were adopted (*Invisible; Available; Monitoring; and Intervening*). The results indicate that there was no significant relationship between the individual factors, but respondents in homes where there was *monitoring* and *intervening* guardianship, they reported lower than expected values. A further grouping (*Invisible & Available* versus *Monitoring & Intervening*) the analysis of the data did reveal significance, and does raise indicate that the availability of guardianship via the occasional monitoring is as equally ineffective as no monitoring. This then lends weight to the argument that active guardianship, were there is appropriate and effective monitoring and intervention, can reduce incidents of cyberbullying and victimisation.

These results support the Routine Activity Theory, which argues that in an environment where there is a lack of capable guardianship, the likelihood for deviant behaviour increases (Walker et al., 2013). This means that children who have unfettered access to the internet via computers and cellphones, are significantly more at risk to both victimisation and offence. The implications to both parents, schools and policay makers is significant. Parents need to take great care when they place technology in a child's hands, and they need to make sure that they have strategies in place to monitor usage. Schools and policy makers should invest in programmes which educate and inform adolescents and should supply ways to report deviant behaviour. This is a significant finding and is not only applicable, but provides an explanation for the online anti-social behaviour in the environment studied.

Finally the results also indicate that the level of self-control within a child, has a significant effect on the rate of incident. Children who reported lower levels of self-control are significantly more likely to be involved in cyberbullying. This calls then for an urgent establishment of protocols and interventions that look to increase level of self-control within a child. Gottfredson and Hirschi (1990) suggest that self-control is influenced by four factors, three of which are factors for measuring active guardianship. It is then reasonable to suggest that if a respondent's decision is effected by their level of self-control, and self-control is effected by the levels of active guardianship, in order to reduce deviant behaviour online, we need to increase the levels of active guardianship. This responsibility cannot, however, fall squarely on the shoulders of the parent/guardians, but equally on the internet service providers and authorities alike. We need to make sure that there are not only laws, but regulations in place that place the burden of responsibility on industry to devise better methods of monitoring and reporting.

10 Conclusion

The rapid growth of the internet and the wide spread availability of low-cost electronic devices has undoubtedly transformed teaching and learning, but there are inherent risks. The online safety and security of our children is a concerns of both parents and schools alike. Cyberbullying presents itself as a social problem where the root cause are mask, and current reactionary solutions appear to be ineffective. Although current cyberbullying research has provided us with much insight, it has proven to be inadequate in solving the problems relating to the interconnecting relationship between the constituents of the phenomenon, often driving solutions in the wrong direction.

The main objectives of this research were to outline the problem area and suggest an altered definition which does not rely on repetition as a major characteristics, to investigate the role of active guardianship and self-control. A further objective was to link the 2012 research with the 2014 results to track potential trends or shifts in this relatively new phenomenon. A number of schools within the South Africa were approached, and owing to the pertinent nature of the research the study was very well received. In total 17 schools agreed to conduct the survey, and in four cases schools requested to be part of the study.

Emerging from the findings is that children in South Africa have increasing access to the internet, and although incidents of traditional bullying remain a real concern, cyberbullying is on the rise. Over 99% of children can access the internet, and over 87% own a cell phone with internet access. Much of this internet access is not adequately monitored by both parents and school staff. Impacts were perceived as feelings of anguish, distress, fear and depression.

Analysis of the findings supports current research and identifies a curvilinear relationship with age/grade, and identifies traditional bullying factors as key influencing factors. However, they contradict the majority of findings which have found that gender is not a predictor to cyberbullying incidents. Further to this, a critical observation is the strong link between the lack of active guardianship and lower levels of self-control and incidents of cyberbullying and victimisation.

This research provides a platform for further research and the following recommendations are suggested.

10.1 Future Research and Recommendations

There are four distinct areas for further research.

- Firstly, the relationship between incidents of cyber victimisation and gender needs to be investigated further, and particularly the indication that these levels may be heightened in single sex girls schools;

- Secondly, as has been identified, there is a strong link between incidents of cyber victimisation and lower level of active guardianship. There are growing concerns regarding social media, and these investigations will assist us in creating effective strategies to curb inappropriate behaviours online;
- Thirdly, the strong link between incidents and lower levels of self-control will equally require further investigation. Of significant interest would be the effect of lower levels of active guardianship on lower levels of self-control. If this is the case then there is an argument that ineffective active guardianship could be a root cause of cyberbullying;
- Finally, as highlighted in the review of literature, there is paucity of a rigorous theoretical framework. Although we can draw on theories of human behaviour to frame parts of the problem area, there is a need for rigorous framework. A conceptual model needs to be developed to explore the influences which contribute to the phenomenon's growth. This will be fundamental in the creation of a risk assessment framework, which will enable concerned parties to evaluate children's exposure and recommend steps that can be implemented to combat the phenomenon. The framework presented by Kernaghan & Elwood (2013), which itself is based on Goffman's conceptual framework of Presentation of Self (1959), presents us with such a framework. This research has looked to develop this framework further, but further research and work is required here.

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Appendix A – Quantitative Questionnaire

- Printed copy of online questionnaire
- Printed copy of offline questionnaire

Appendix B – Letter of Invitation to School Principals

Appendix C – Pro forma letter to parents

Appendix D – Commerce Faculty Ethics in Research

Appendix E – Research Approval from Education Departments

- Research approval

Appendix F – Survey Procedure Guidelines

Appendix G – Correlation Matrix

Appendix H – Descriptive Statistics – Frequency Tables

Appendix I – Cyber incidents BY PERCEIVED IMPACT

Appendix J – Cyber Incidents BY GENDER – Chi-Squared

Appendix K – Cyber Incident BY AGE and GRADE – ANOVA

Appendix L – Cyber Incident BY INTERNET USAGE - ANOVA

Appendix M – Cyber incidents BY TRADITIONAL BULLYING FACTORS

Appendix N – Cyber incidents BY ECONOMIC FACTORS

Appendix O – Cyber incidents BY ACADEMIC PROGRESS

Appendix P – Cyber incidents BY ACTIVE SUPERVISION

Appendix Q – Cyber incidents BY SELF-CONTROL

Appendix R – Cyber incidents DISCRIMINANT ANALYSIS