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KEY INFLUENCES OF CYBERBULLYING FOR UNIVERSITY STUDENTS

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Abstract

It is hard to imagine a world without mobile phones, PDAs, and wireless/Broadband access on PCs. With the prevalence of electronic communication tools, people (including students) are finding it harder to live without them. Not surprisingly, these electronic communication tools provide benefits that enrich students' scholarly and social experiences. However, evidence also shows that the usage of electronic communication tools can result in negative behaviour such as cyberbullying. This study, building on prior research findings, develops a conceptual model to explore influences other than psychological factors, which lead to individuals displaying cyberbullying behaviour. We collected data from 134 university students, and our analysis indicates that 62% of the representative sample had experienced cyberbullying in the past year, and 40% of our respondents have conducted actions which can be constituted as cyberbullying behaviour in the past year. Our study also suggests that technology usage and social pressure are additional factors that influence a person to conduct cyberbullying related actions. Results from this study can provide directions to concerned parties, to develop strategies and policies to reduce this social problem to a minimum.

Keywords: Cyberbullying, Electronic communication tools, Technology usage.

1 INTRODUCTION

Bullying is a serious social problem (Campbell 2005). It happens worldwide and can happen at any stage of a person's life, from childhood playground to high school, university and even at the workplace. The digital and information revolution has merged into a 'communications revolution' (Spitberg & Hoobler 2002). People, especially students, have embraced the Internet and other electronic devices such as mobile phones and PDAs. The potential for bullying via electronic communication tools has grown with the advancement in communication and information technology (Li 2007).

The prevalence of technology and its integration within our lives makes electronic communication tools a convenient medium for people to express their emotions. Unfortunately, Internet usage has been found to be related to a person's lack of social skills, lower levels of self-esteem and higher levels of anxiety and aggression (Aricak 2009). Even though the use of physical force is not possible via the Internet, some victims have reported the threat to be as realistic and disturbing as face-to-face situations (Aricak 2009).

Like many countries, Australia is also concerned with this new phenomenon. The Victorian government has banned YouTube in all government-run schools since early March 2007 "in a crackdown on cyberbullying" (Tribune 2007 March 1). This ban came after the traumatising experience of a 17 year old Melbourne girl who was assaulted by a gang of male school students who videotaped the incident and circulated it worldwide via YouTube. Furthermore, Western Australia's Department of Education has been particularly supportive of further studies into cyberbullying, and provided examples where school children took embarrassing photos and/or videos of their classmates during swimming carnivals, and then circulated the contents via electronic communication tools (O'Brien 2008 March 10).

The definition of cyberbullying contains the three characteristics of negative behaviour which make up the definition for traditional bullying (Aricak et al. 2008; Li 2008; Smith et al. 2008a):

- Repetition,
- Physical or verbal negative behaviour made with harmful intent, and
- Imbalance of power between the perpetrator and target.

In addition, the definition for cyberbullying added the condition of the mode of conduct – it is conducted using electronic form of contact. The definition of ***cyberbullying*** that we have adopted for this study is: ***'an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself'*** (Smith et al. 2008a, pg1).

In this paper, "electronic forms of contact" refers to "electronic communication tools". This includes blogs, email, online games, chat rooms, Skype, social networking websites, SMS, voice calls, voice mail, mobile phone picture messages, and forums. A cyberbully is referred to as an individual or group who has bullied another individual (the cybervictim) using electronic communication technologies. Bullying is refers to bullying in the traditional physical or verbal way, and cyberbullying refers to bullying via electronic communication technologies.

Cyberbullying is a real issue for individuals (especially for those being bullied) and the society at large; it needs to be brought to the attention of students, parents, employers, government, and educators. By exploring the fundamental antecedents of cyberbullying, particularly with respect to how electronic communication tools can affect this phenomenon, we expect effective management and control of this problem. This study has two major implications. Firstly, it contributes to our understanding on the design of mechanisms provided by electronic communication tools, to reduce cyberbullying. Secondly, an understanding of users' perceptions and attitudes towards online communication, especially with respect to cyberbullying tendencies, may assist with drawing up guidelines for appropriate online etiquette that discourages cyberbullying behaviour, and alerts potential victims to cyberbullying situations.

To achieve this research objective, a literature review of relevant studies was conducted and is presented in Section 2. Section 3 describes and justifies the conceptual model for this research, followed by the research approach adopted to answer the research questions. Section 4 presents the empirical results obtained from the study, derived from a descriptive analysis for research question 1, and a test of the

conceptual model for research question 2. Finally, Section 5 begins with a discussion of the results, concluding with the limitations and future research directions.

2 BACKGROUND

Although the definition for cyberbullying has the same core constructs (repetition, physical or verbal negative behaviour made with harmful intent, an imbalance of power between the perpetrator and target (Aricak et al. 2008, Li 2008, Smith et al. 2008a)) as traditional bullying, there are some important distinctions between them. Ybarra et al. (2007) found that 64% of sampled youth had experienced cyberbullying behaviours, but did not report being traditionally bullied in school. This raises the question of whether unique factors of electronic communication tools are increasing the breadth of victims. This section provides an analysis on existing published research in the area of cyberbullying. In particular, we examined in detail the possible factors which contribute to cyberbullying behaviour which provides the foundation for this study and justifies the proposed research questions.

2.1 Anonymity

Cyberbullying has enabled negative behaviour to be conducted anonymously via online environments. The ability to remain anonymous on the Internet lowers the user's self-awareness, and studies have shown that anonymity may also stimulate a person to react impulsively and aggressively towards another online user (Aricak 2009). The unknown identity of cyberbullies can cause fear and distraction for victims (Shariff & Gouin 2006).

Existing literatures had demonstrated anonymity associated with electronic communication tools promotes cyberbullying behaviour (Aricak et al. 2008, Campbell 2005, Li 2008, Raskauskas et al. 2007). Cyberbullying exhibits the characteristic of not providing a face-to-face experience, this allows cyberbullies with the intention stay anonymous appear unknown to their victims, (such as setting up an email account under false name (Li 2007, Raskauskas et al. 2007, Smith et al. 2008b)). According to Herring (2001), anonymity reduces social accountability for the bully, making one feel less guilty when engaged in hostile and/or aggressive acts (Herring 2001, Synchronous CMC section p. 7). Furthermore, Campbell (2005) stated that the anonymity offered by the electronic communication tools could produce bullies, who would not normally participate in traditional face-to-face bullying.

2.2 Technology usage competency

Traditional bullies are often characterised as being physically stronger or bigger than their victims. However, cyberbullies do not have to be physically stronger or bigger than the cybervictims, rather, a person's competency in using the technology provides 'power' to become a bully (Raskauskas et al. 2007, Smith et al. 2008b).

Raskauskas & Stoltz (2007) proposed and tested the proposition "victims of traditional bullying would be electronic bullies". However, their findings did not support that victims of traditional bullying would seek revenge and become cyberbullies. As with much of the literature in this area, there were some inconsistent findings. When surveyed, some reported cybervictims also admitted being victims or bullies in school. This is given some limited support by the finding that 25% of Raskauska & Stoltz (2007)'s sample of 16 adolescents admitted that they had conducted cyberbullying behaviour to "get back at someone they're mad at". This suggested a significant percentage of cyberbullies uses electronic communication tools to seek revenge.

Ybarra & Mitchell (2004) found that self-reported experts in Internet knowledge were twice as likely to report exhibiting aggressive behaviour towards someone else online compared to self-reported non-experts. In addition, those who spent an average of four or more days per week on the Internet were 73% more likely to show cyberbullying behaviours online. Ybarra & Mitchell (2004) suggested that it is possible that some online aggressive behaviour was the result of frustration felt by adolescents who have spent an extended amount of time online.

In addition, it is also suggested that the chat room and email environment promote the opportunity of aggressive response by users (Campbell, 2005). This argument is supported by the non-verbal nature of Internet, which does not allow for direct feedback, therefore, could encourage people who may not respond aggressively in the same situation in a traditional environment, to feel less constrained and exhibit aggressive behaviour online.

2.3 Information distribution

Traditional bullying typically occurs at a specific time and place, while cyberbullying can happen anywhere, and at any time, as the cybervictims may continue to receive text messages, emails or see comments made on websites wherever they are (Li 2007, Li 2008, Smith et al. 2008b).

The breadth of the potential audience also differs between traditional and cyberbullying. With the nature of electronic communication tools, an embarrassing and/or private image can be spread much faster and reach a far larger audience size than traditional bullying, which might be confined only to particular classroom or school settings (Li 2007, Raskauskas et al. 2007, Smith et al. 2008b).

However, there has yet been any empirical evidence on if the global nature of the Internet is indeed encouraging people to engage in cyberbullying behaviour.

2.4 No direct feedback

The nature of electronic communication tools does not allow feedback of the consequences of the cyberbully's actions on the victim, providing less chance for bullies to show feelings of empathy or remorse. The virtual environment also promotes a false sense of intimacy and allows for easier misinterpretation of received messages, which may promote greater risk-taking and cause cyberstalking (Finn 2004). In addition, virtual communications may also provide less opportunity for a bystander's intervention to the situation (Smith et al. 2008b).

2.5 Effects of cyberbullying

Existing literature identified substantial effects cyberbullying could have on victims. Herring (2002) argues that cyberbullying behaviour constitutes violence, as it can substantially affect the victim physically, psychologically and/or emotionally (Shariff & Gouin, 2006). Shariff (2003) identified changes in the US laws, where emotional and psychological harm e.g. mental shock and suffering are recognised as 'tangible' harm (Shariff & Gouin, 2006). People often report suffering from stress, emotional distress, feeling upset, feeling embarrassed, or afraid as a result of cyberbullying experience (Ybarra et. al. 2007, Finkelhor et al. 2000). Therefore, it is important to address the causes of cyberbullying to assist counsellors, and policy makers to develop programs to reduce this problem.

For educational institutions, if bullying complaints are taken to court, or made public by the media, there can be severe consequences including financial losses from claims for negligence (Shariff & Gouin, 2006) and harm to the institution's reputation (JCU, 2009).

2.6 Research questions

Cyberbullying is a recent but uprising phenomenon, and the knowledge in this field of study is still in its infancy. The literature to date has conflicting findings/theories among cyberbullying research studies. Based on the existing literature on both cyberbullying and Internet characteristics, this study will examine two unique factors of electronic communication tools – Technology usage and people's perceptions and attitudes towards the online environment, which may lead to individuals displaying cyberbullying behaviour.

This study explores the following research questions:

RQ1. To what extent do Australian university students experience cyberbullying?

RQ2. Do the following factors cause/influence a person to conduct cyberbullying behaviours?

- Technology usage

- Perceptions and attitudes

Proposition 1: An individual's technology usage competence affects their cyberbullying behaviour.

Students with a high level of competency in electronic communication tools usage maybe more inclined to engage in cyberbullying behaviours. Existing literature supports the view that greater magnitude and/or expertise in the use of electronic communication tools often lead to increased cyberbullying behaviour. For example, Ybarra & Mitchell (2004) found that self-reported experts in Internet knowledge were twice as likely to report exhibiting aggressive behaviour towards someone else online.

Two indicators of technology usage were used to determine if it leads to cyberbullying behaviour. These indicators were adapted and modified from studies on Internet usage (Anandaraja Et al. 2000, Cheung & Huang, 2005). 'Intensity of use' is the measure of an individual's amount of time spent using the electronic communication tool (Anandaraja Et al. 2000). 'Frequency of use' is the measure of the number of times an individual would use the electronic communication tool.

Proposition 2: An individual's perception and attitudes towards the Internet affects their cyberbullying behaviour.

Three indicators on perceptions and attitudes were adapted and modified from the existing literature (Anandaraja Et al. 2000, Cheung & Huang 2005). These indicators were developed as they are believed to have important influence on individuals' perceptions and attitudes which affect their usage of information technology. Therefore, an individual's perceptions and attitudes are assumed in this research study to possibly influence cyberbullying behaviour.

'Perceived enjoyment/fun' is derived from the indicator from the modified Technology Acceptance Model (TAM) model (Cheung & Huang 2005). This indicator represents the intrinsic motivation for an individual to display cyberbullying behaviour, through measuring the perception of their enjoyment using electronic communication tools. The 'social pressure' concept is taken from the Theory of Reasoned Action (TRA) model (Cheung & Huang 2005), and is referred to "a person's perception of the social pressures put on him/her to perform or not to perform the behaviour in question." 'Technology self-efficacy' is based on the indicator of 'Internet self-efficacy defined by (Anandaraja Et al. 2000) as "an individual's beliefs about his/her ability to competently use the technology". This is related to the users' experiences with the electronic communication tools.

The conceptual model developed for this research study is presented in Figure 1.

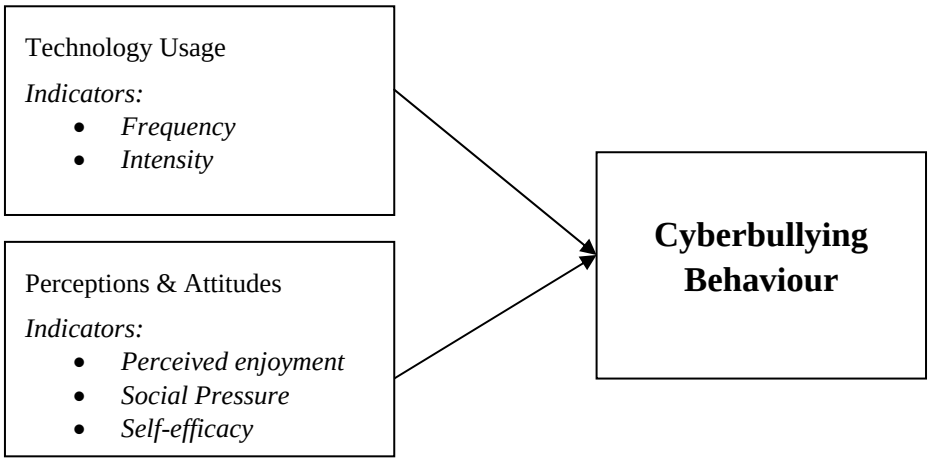

Figure 1. Conceptual Model

3 RESEARCH METHODOLOGY

A positivist approach in the form of online surveys was chosen for this research study. This approach was decided based on existing literature, where all cyberbullying studies have taken quantitative positivist research method. Also, positivist approach is appropriate for this study considering the nature of the chosen research questions, where generally, quantitative research is "used to answer questions about relationships among measured variables with the purpose of explaining, predicting, and controlling phenomena" (Leedy and Ormrod, 2001 cited in Whisler, 2004).

This research requires the sample selection to enable accurate demographic representation of Australian university students. A case study on students of the University of New South Wales was conducted for this research study. UNSW students were recruited via two methods – online and on campus. Firstly, students who had joined a Facebook group associated with UNSW were randomly chosen and sent Facebook messages asking for voluntary participation in the online survey. Students were given links to a website where they could then complete the survey online. Secondly, print-outs of the online survey were also distributed to students randomly on the Kensington campus. The pen-and-paper method was utilised in addition to the electronic online survey to increase response rates and more importantly, enable greater ability to generalise research results.

The main study collected 87 responses from online survey, and 47 paper-based surveys. Data collected from the online questionnaire was automatically collated and exported to excel. Data collected from paper-based surveys were data coded manually. Distribution graphs were conducted in Excel on the two sets of data. The decision to combine the two sets of data for analysis were decided when no significant differences were found between the two sets of responses.

3.1 Survey design

Ethics approval to collected data from respondents was obtained from The University of New South Wales before data collection. The survey was designed based on a range of literature from the literature review. To allow for a comprehensive view on the constructs hypothesized as influencing cyberbullying, related survey questions were developed based on survey questions on subjects not focused on cyberbullying. For example, survey questions measuring 'Technology Usage' were subsequently developed by consulting and adapting from established frameworks on Internet usage (Anandaraja Et al. 2000, Cheung & Huang 2005). The survey questions aimed to determine whether the student is a cyberbully or a cybervictim, have been developed from the type of cyberbullying actions outlined in the literature (Willard 2004, Li 2008, Bamford 2004, Finn 2004, Aricak et al. 2008). The words Cyberbully/cybervictim/cyberbullying did not appear on the survey, as the individual's perception on the terms might affect their responses. Amendments made to survey questions were done to fit the sample and the technological era (please refer to appendix A for the survey questions). The online survey was designed and implemented using SurveyGizmo, a web-based survey tool. Incomplete/ partial responses were held by SurveyGizmo and were not included in data analysis.

The survey developed for this research study was pre-tested and administered to the sample of the targeted respondents – university students of UNSW. The pilot survey took respondents approximately 12 minutes to complete. The main survey took respondents approximately 8 minutes to complete. The pilot study was available to respondents for four days only. The main study was made available to participants over a period of ten days.

3.2 Data Analysis

To explore research question 1, SPSS V17.0 was utilized to provide descriptive analysis. Normality test was conducted to determine the distribution of the independent and dependent variables. As the sample was found to be of non-normal distribution, non-parametric statistics was used to conduct descriptive analysis.

It was anticipated that multiple regression analysis (SPSS) will be used to test the causal relationship between the four constructs in the conceptual model for research question 2. However, analysis of the

data from the main survey study showed that none of the dependent and independent variables used was of normal distribution. Non-parametric tests were used to determine relationships between pairs of variables. Structural equation modelling (SEM) technique PLS-Graph Version 3.00 was used to test the overall proposed model.

In the conceptual model, indicators which made up Perceptions and Attitudes (Self-Efficacy and social pressure) have been modelled as reflective indicators. Reflective indicators are items taken from the survey that reflects a chosen underlying construct. In PLS-Graph, reflective indicators can be examined by determining their loading score. On the other hand, Technology Usage was modelled as formative indicator. Formative indicators are items that directly cause the construct they are measuring (Chin, 1998).

Composite reliability test was conducted on reflective indicators, as this reliability test does not assume all indicators are equally weighted (Chin, 1998). The composite reliability value for the reflective indicators was 0.792, which is over 0.70 – which indicates acceptable composite reliability. Formative indicators cannot be measured of their internal consistency reliability (Chin, 1998), as formative indicators causally impacts on the underlying construct, therefore, no interdependencies between the items can be assumed (Mathieson et. al., 2001). Multicollinearity among items needs to be determined for formative indicators. Stability can be determined by the R-Square of the independent variable, when it is separately regressed on the rest of the constructs. The R-Square value for Technology experience is 0.536 which is below 0.80, indicating stability.

4 RESULTS

4.1 Part 1 – Descriptive Analysis

The data showed that 62% of respondents had experienced cyberbullying in the past year. 40% of respondents have conducted actions which can be constituted as cyberbullying behaviour in the past year.

Online games seem to be an extreme case of cyberbullying. Out of the 134 respondents, only 53 people are regular online gamers (40%). 47% of online game players have been cyberbullied by flaming messages more than twice in the past year. Players of online games are characterised by their respective unknown real-life identity to other players. Survey respondents had stated the following: “There are plenty of idiots online.” And “People act more aggressively on the net, even if they are scared in real life”. This suggests that a university student usually predicts/expects flaming related behaviour from online users whom are unknown to them in real-life. As the online gaming environment requires a large amount of interaction with other unknown players, it is possible that the flaming is imbedded in online gaming culture.

21% of respondents have experienced flaming via Instant Messaging in the past year. 17% have experienced flaming via phone calls and/or SMS. 8% of respondents had experienced cyberbullying through masquerading. 17% of respondents had been cyberbullied through outing and trickery actions. 14% of respondents acknowledged conducting flaming behaviour in the past year via Instant Messenger (IM), which seems to be the most common form of electronic communication tool used when conducting flaming behaviours. A small percentage of respondents had admitted to engaging in anonymous cyberbullying behaviour, IM seems to be the most common electronic communication tool used for masquerading, followed by online games and social networking websites / blogs.

4.2 Part 2 – Conceptual Model

4.2.1 Partial Least Squares

There are two different methodological approaches to modelling relationships between latent variables, covariance structure analysis and PLS path modelling. Data analysis for this research study will take the PLS path modelling approach, using PLS-Graph version 3.00 developed by Professor Wynne Chin (2003). The following figure is the conceptual model constructed in PLS-Graph.

There are four independent variables aiming to predict the dependent variable. These four independent variables include the construct of Technology Usage (depicted by ‘Technology Usage’ on the model

above) and the construct of Perceptions and Attitudes (depicted by 'Technology experience', 'perceived enjoyment' and 'social pressure' in the above model).

The dependent variable for this conceptual model consists of all the items measuring cyberbullying construct, this includes, flaming, outing & trickery, and masquerading. Overall the R square resulted with a value of 0.462 (see figure 2), this demonstrates that a quite significant amount of variance can be explained by the independent variables.

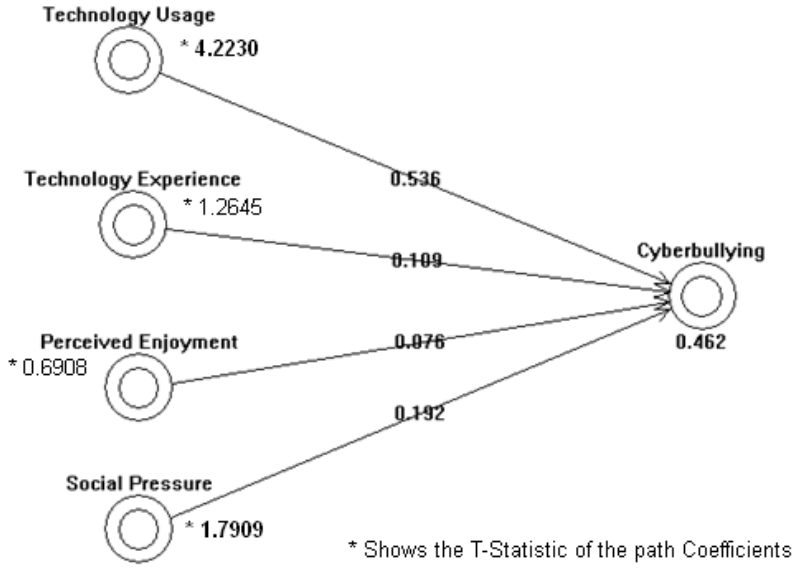

Figure 2. Conceptual model with cyberbullying as dependent variable

Bootstrapping with 500 samples was used to again assess the significance of the PLS estimates. Overall, t-test analysis had found that Technology usage was significant to a level of 0.01, Social pressure was significant to a level of 0.05, however, perceived environment and technology user experience indicators cannot significantly explain cyberbullying behaviour.

Findings from part 1 of this analysis suggest the extent of cyberbullying may have been inflated by an extreme type of electronic communication tool – Online Games. Additional conceptual model analysis was run without the online gaming variables (B_Masq_Games, B_F_Games, Intensity_Games, Freq_Games). Resultant R square value was significantly lower at 0.261. Without taking Online gaming variables into account, the model demonstrates that only a certain amount of variance (26.1%) can be explained by the independent variables.

5 DISCUSSION AND CONCLUSION

5.1 Research question 1

Students of The University of New South Wales (UNSW) were chosen as the representative sample for this research study. The main data collection found that 62% of the representative sample had experienced cyberbullying in the past year. 40% of respondents have conducted actions which can be constituted as cyberbullying behaviour in the past year.

Findings of the amount of cyberbullies and cybervictims are high relative to existing literature results. The variability is possibly due to the following factors:

- A number of previous studies had provided a definition of cyberbullying within the survey question set, then asking respondents to determine if they have been cyberbullied / is a cyberbully based on the given definition. This study had taken a different approach. Our survey questions consist of a series of questions that determines if a person has experienced/conducted cyberbullying behaviour in the past year. The series of questions were developed based on the types of actions which constitute cyberbullying behaviour. Then the respondent's responses to the series of questions were aggregated

by the researcher to determine whether a particular person had experienced/conducted cyberbullying in the past year. This approach is believed to be more reliable and accurate as each respondent's position is determined according to the cyberbullying definition, as some people may not know (or believe) that their experience/behaviour constitute as cyberbullying.

- No known prior studies have been conducted on Australian university students. Therefore, this study reflects the current trends experienced by this group.
- It is possible that the data analysis of the number of university students who had experienced cyberbullying may have been inflated by the inclusion of flaming through online gaming. If adjusted for excluding online gaming from the analysis, (that is, calculate the rate of cyberbullying experience without flaming through online gaming) it is found that only 46% (compared to 62% including F_Online_Games) of these university students have experienced cyberbullying in the past year. On the other hand, 33% of respondents had conducted actions which can be constituted as cyberbullying behaviour (adjusted for flaming through online gaming).

It is quite common for university students to experience having their sensitive and/or private messages/motion pictures/photos uploaded online or distributed via mobile phone. With 17% of respondents had answered "once or more" to the question - "In the past year, how many times has anyone sent, forwarded or posted sensitive, private or embarrassing messages/motion pictures/photos of you online or via mobile phone?" This is possibly due to the prevalence and convenience of mobile phone ownership/usage, and the convenient nature of email and especially social networking websites such as Facebook.

5.2 Research question 2

As shown in the results section, significant evidence supports that as an individual spends more time on electronic communication tools, they tend to conduct more cyberbullying related behaviour. This correlation suggests that the amount of technology usage cast significant influence on an individual's tendency to conduct cyberbullying related behaviour. The finding supporting this proposition is consistent with findings from the existing literature (Raskauskas et al. 2007, Smith et al. 2008b). We can conclude that there is ample evidence to support that the amount of technology usage can affect students' display of cyberbullying related behaviours.

Several prior studies on Internet usage had mentioned that perceived enjoyment, social pressure and self-efficacy impacts on a person's online behaviour. Significant evidence from this study shows that social pressure from peers using Internet applications weakly affects an individual's cyberbullying behaviour. This is an interesting and novel finding, as this proposition was developed based on Internet usage literature, not cyberbullying and/or bullying literature. Other finding under this proposition was that an individual's experience with technology usage and their perceived enjoyment of Internet do not significantly affect their cyberbullying behaviour. Future research should focus on validating the social pressure construct and its correlation with cyberbullying behaviour. In addition, there could be other indicators that can be formed under 'perception and attitudes' construct, especially from close monitoring of new developments from the Internet Usage literature area.

It must be noted that based on the existing literature, there exist many psychological factors which could cause a person to conduct bullying related behaviour. Specifically, this could include: angry response to perceived threats, revenge acts against another individual, aim to obtain social or material rewards, and dislike of a person's physical traits. As a result, findings from this research study suggest that technology usage and social pressure are the possible additional factors that influence a person to conduct bullying actions using electronic communication tools. The ability to be anonymous online seems to be correlated with increased cyberbullying related behaviours. This may further suggest that factors unique to electronic communication tools may have influenced cyberbullying behaviours.

5.3 Limitations

A limitation of this study is that this is done on university students where they are mostly considered to be in their late teens or early 20s, this does not fit into the 'brutalizing period' described by most

literature as the early adolescent phase where bullying are considered to be most prevalent. However, this limitation is also an opportunity to explore this new age group.

250 survey invitations were sent out via both online and paper-based methods, and potential participants were given 10 days to complete the survey. Final response rate was 54%. The response rate was quite high considering the short time frame. However as the university has approximately 40, 000 students, 134 (0.3%) sample size may compromise generalisability. Further studies should allow for a larger timeframe and possibly use incentives to encourage a larger sample size. Another limitation of sampling is possible high bias from the self-selection of participant using Facebook. This sampling method was taken at the time due to time restrictions, ease of implementation and the assumption of – a very large percentage of UNSW student has a Facebook profile. An alternative sampling method would be preferred given appropriate resources, and is recommended for future studies in this area.

Overall discussion and results drawn from this study must take the demographics of the research sample into consideration, as Australia is a new geographical area for cyberbullying related research, and a minority of studies on university students currently exists. However, it should be noted that "this limitation does not, however, diminish the quality of the study, just the immediate generalisability of the conclusions" (Russell, 1998, p.24).

Results for research question 2 from this research study should be carefully considered. The survey instruments used in the survey were mostly based on

- Existing surveys focusing on middle and high school students.
- Existing literature on Internet Usage, which is classified in a different category as cyberbullying.
- Existing literature, with the survey questions developed by the authors of this paper. Further research is required to replicate the results in other settings, in order to test the generalisability of the results.

5.4 Contributions and Further research

Results from this research study suggest that cyberbullying represents a problem of significant magnitude to society. Through exploring the differences between traditional bullying and cyberbullying, this research study has contributed to the existing literature on identifying that technology usage and social pressure influence users of the Internet into engaging in cyberbullying related activities. With the increasing trend of rapid electronic communications technology development, continuous attention is required to be paid around the controls to minimise cyberbullying occurrences.

Future studies could study whether cyberbullying behaviours conducted by university students were 'replacements' of traditional bullying or has there been a general increase in bullying behaviours overall. That is, based on findings from this study, future research should examine why greater electronic communication tool usage has led to a greater likelihood of conducting cyberbullying related behaviour. The results from these studies can then provide directions for concerned parties to develop mechanisms, strategies and policies to minimise this social problem.

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Appendix A – List of survey questions

In the past year, how many times have you received angry or rude messages specifically directed to you from anyone (including friends, family, associates, strangers) sent through the following ways:
In the past year, how many times had another person pretended to be you in order to send or post negative materials online
In the past year, how many times has anyone sent, forwarded or posted sensitive, private or embarrassing messages/motion pictures/photos of you online or via mobile phone?
In the past year, how many times have you sent angry or rude personal messages to someone else through the following ways?
In the past year, how many times have you sent, forwarded or posted sensitive, private or embarrassing messages/motion pictures/photos of someone online, or via mobile phone?
In the past year, how many times have you deliberately infected someone with a virus to his/her email account, chat-room account, instant messenger account, social networking account, or blog account?
In the past year, how many times have you pretended to be someone else which had made him/her/them look bad, by sending or posting materials through the following electronic communication methods?
What are chances that you will conduct negative behaviour against another individual using electronic communication tools when you are fully identifiable?
I generally enjoy communicating to people via the Internet (applications such as email, IM, social networking websites).
In general, I think browsing the Internet is interesting
In general, I think gathering information on the Internet is fun
On an average day, how much time do you spend on the given activities below?
How frequently do you undertake the given activities below?
In my experience, group of friends usually becomes aggressive when using the Internet together.
Most of my close friends think that I should be using Internet applications (e.g. email, IM, social networking websites) regularly.
Most of my close friends think that being assertive on the Internet is socially acceptable.
Please rate your experience working with the following electronic communication tools: