

CTRL + ALT + DEL: A DARK & INTERPERSONAL PERSPECTIVE OF  
CYBER-BULLYING

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## **Abstract**

### **CTRL + ALT + DEL: A DARK & INTERPERSONAL PERSPECTIVE OF CYBER-BULLYING**

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With the expansion of the internet, there are a number of opportunities to engage in cyber-bullying behaviour, however, to date, only a few studies have examined interpersonal predictors of cyber-bullying. The purpose of this research study was to explore relationship and personality factors associated with being a bully and/or a victim. The first goal of this study was to develop a comprehensive cyber-bullying measure. Results indicated three groups of cyber-bullying behaviours, including traditional (e.g. gossip); personal attack (e.g. negative remarks towards religion); and malicious behaviours (e.g. threats). Next, the associations between cyber-bullying and attachment, interdependence, and the dark triad of personality were examined. Analyses revealed that cyber-bullying was negatively associated with attachment security and interdependence and positively associated with insecurity and psychopathy. Discussion of the findings highlighted the importance of the dark triad in understanding predictors of cyber-bullying behaviours.

**Keywords:** cyber-bullying, bullying, attachment theory, interpersonal relationships, personality, technological communication, and the dark triad.

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## **Introduction**

Understanding the characteristics and influences behind the bullies on the playground and the bullies in the workplace have been well established; however, these days bullying is not limited to in-person contact as it is now spreading across all forms of communication including texting, emailing, blogging, internet communication, and popular social networking sites such as Facebook and Twitter. Nadkarni and Hofmann (2012) suggested that individuals use social networking sites like Facebook to feel as if they belong to something, as well as to fulfill their need for self-presentation. However, individuals are also using these social networking sites to engage in cyber-bullying behaviours. The purpose of this research is to examine cyber-bullying from an interpersonal and personality perspective to understand how these factors influence those who engage in or experience cyber-bullying behaviours. Bullying is a phenomenon that researchers have been studying for years; although cyber-bullying research is still developing. To understand the progress of traditional bullying research and the evolution of cyber-bullying it is important to go back to the beginning and start with the bullies on the playground at school.

## **Bullying**

Bullying research is thought to originate in the 1970's by Olweus in Norway to understand cruel interactions between children at school (Bosworth, Espelage & Simon, 1999). Traditional bullying behaviours are those well-known aggressive and physical behaviours that commonly occur between children on a playground at school. This type of bullying has commonly been defined as an intentional behaviour towards someone that causes physical or psychological harm (Espelage, Bosworth, & Simon, 2000). Bullying

behaviours can be direct, for example hitting another person, or indirect bullying behaviours such as spreading rumours (Espelage et al., 2000). These bullying behaviours are quite common, which have been established in multiple research studies. For example Bosworth, et al. (1999) found that in a sample of 558 middle school students, 81 percent reported that they had engaged in bullying behaviour in the past 30 days. Similarly, Viljoen, O'Neill, and Sidhu (2005) found in a sample of adolescent offenders ranging from 13-19 years of age that 69 percent reported they had engaged in bullying behaviours. Given that bullying behaviours are so common, many researchers have tried to establish common characteristics of bullies and their victims.

**Personality characteristics.** Different studies have found multiple personality correlates among bullies. Coolidge, DenBoer and Segal (2004) found that engaging in bullying behaviours correlated with diagnoses of several Axis II disorders within the *DSM-IV-TR* such as histrionic, paranoid, passive-aggressive, and dependent personality disorders. Similarly, Vaughn et al. (2010) found bullying behaviour to be significantly related to histrionic, paranoid and antisocial personality disorders. Therefore, research has been able to establish some overlap among the personality disorders related to bullying behaviours.

Furthermore, bullying behaviours have also been associated with various individual personality characteristics. For example, a hot temper, aggression, a need for power, and a large ego that is sensitive to criticism are all personality characteristics that have been found to be associated with bullying behaviours (Smith, 2004). Similarly, Bosworth et al. (1999) described that bullies are more impulsive in comparison to non-bullies. Furthermore, Baughman, Dearing, Giammarco, and Vernon (2012) examined the

relationship between bullying and the dark triad of personality including narcissism, Machiavellianism, and psychopathy. Narcissism involves feelings of vanity and grandiosity, whereas Machiavellianism is a personality characteristic that involves deceiving and manipulating others for personal gain. Psychopathy is the most complex, and involves three characteristics including impulsivity, callous-unemotional traits and narcissism. Baughman et al. (2012) found that all three personality characteristics within the dark triad were significantly related to engaging in bullying behaviours. Specifically, psychopathy had a strong effect size with engaging in bullying behaviours, whereas narcissism had a small effect size (Baughman et al., 2012). Lastly, Sutton and Keogh (2000) also found that individuals who engage in bullying behaviours scored higher in Machiavellianism in comparison to matched controls. Overall, these findings indicate an important personality component to bullying behaviours, which involves both individual personality characteristics, and in more extreme cases can also implicate personality disorders.

Personality characteristics have also been a focus for victims of bullying. Smith (2004) reported that experiencing bullying as a victim was related to high internalizing and externalizing problems. Similarly, Marsh, Morin, Nagengast, and Parada (2011) found that difficulty controlling anger and low levels of emotional stability were related to victimization. Furthermore, Hawker and Boulton (2000) explained that victims had higher levels of anxiety and depression and lower levels of self-esteem. Smith (2004) further suggested that it is a combination of personal and interpersonal factors that enhance the risk for victimization. Therefore, it is also important to examine interpersonal relationships, such as caregiver and peer relationships, to fully understand the factors that

are associated with experiencing victimization and engaging in these behaviours as a bully.

**Caregiver influences.** In addition to personality characteristics, researchers also began to focus on the influences caregiver relationships have on bullies and bullying victims. Smith (2004) found that bullies commonly come from a home with less affection compared to non-bullies. Similarly, Viljoen et al. (2005) demonstrated that bullies often experience low levels of connectedness with their families, whereas victims of bullies have high levels of connectedness or even “overconnectedness” with their families. In contrast, Marsh et al. (2011) found that both bullies and victims had a negative relationship with their parents; however this finding was stronger for bullies.

In addition, Smith (2004) and Espelage et al. (2000) both found that low levels of parental monitoring or supervision are related to engaging in bullying behaviours. In contrast, Espelage et al. (2000) explained that individuals who had an adult that explained there were non-violent ways to deal with conflict were significantly less likely to bully others. In relation to discipline, Espelage et al. (2000) also found that physical discipline from a parent was also associated with engaging in bullying behaviours. Similarly, Viljoen et al. (2005) also found that bullies are more likely to have experienced harsh physical discipline from a caregiver. Furthermore, Vaughn (2010) found that a family history that exhibits antisocial behaviours has also shown to be a correlate of engaging in bullying behaviours. Similarly, Hemphill et al. (2011) found that engaging in bullying behaviours was significantly related to family conflict. These findings emphasize the importance of the relationship between a child and their parents or caregivers. Therefore, further research needs to examine bullying behaviours in relation to specific interpersonal

theories, for example attachment theory. This viewpoint would offer insight to the types of relationships bullies and victims have with their caregivers, including positive and negative relationship qualities. Negative relationship qualities may influence behaviours such as bullying, whereas positive qualities may act as a protective factor. However, caregiver relationships are not the only culprit when it comes to bullying behaviours. Research has found that peer relationships are also important.

**Peer influences.** Research has also established that peer relationships are important influences to examine when studying bullying behaviours. Espelage et al. (2000) established that individuals with peers who engage in negative behaviours, such as bullying, were more likely to also engage in these negative behaviours. Furthermore, Smith (2004) found that peer rejection, low peer acceptance, poor friendship quality, as well as a low number of friends were all related to engaging in bullying behaviours. Similarly, Haynie et al. (2001) found that both bullies and victims reported low levels of bonding with other individuals at school. In contrast, Espelage and Holt (2001) found that popularity was the strongest predictor of engaging in bullying behaviours as it is a method of gaining power and status with peers. Therefore, peers have found to be a significant influence on not only bullying behaviours, but also on victimization. In relation to victims of bullying, Jantzer, Hoover and Narloch (2006) found that victims who reported poorer quality within their friendships were more likely to be victimized by a bully. Furthermore, Espelage and Holt (2001) found that victims reported low levels of school belonging, as well as high levels of negative peer influences. Overall, caregiver influences are not the only influences of importance when examining bullying behaviours, as peer relationships can also have a large impact on engaging in bullying

behaviours. Importantly, as individuals get older peer relationships become more important and individuals may develop stronger peer relationships compared to relationships with their caregivers (Ainsworth, 1985). Therefore, these influences may have a strong influence in adulthood with regards to bullying behaviours if individuals have grown closer to their peers in comparison to their caregivers. Overall, personality and interpersonal characteristics have become evident in traditional bullying literature and are important aspects to examine in the developing cyber-bullying era.

### **Cyber-bullying**

With the computer era came a modern way to bully others, simply known as cyber-bullying. Cyber-bullying has commonly been defined as a repeated intentional and aggressive act against a defenseless victim using electronic forms of contact by a group or individual (Dooley, Pyszalski & Cross, 2009; Smith, Mahdavi, Carvalho & Tippett, 2005; Topçu, Erdur-Baker & Çapa-Aydin, 2008). Currently, the internet and other methods of technological communication (e.g., cell phones), have become the most versatile and common methods to communicate (Carbone-Lopez, Esbensen, & Brick, 2010). With their growing popularity, the potential to bully has become widely available within schools, workplaces, and all aspects of social life. Even worse, these new methods also provide the perpetrators with an option of bullying anonymously, or the choice to hide behind a computer screen instead of confronting someone face to face.

**Measures.** Since cyber-bullying is a new area of research, methods of measurement are still being created and tested. For example, in existing cyber-bullying literature many methods of measuring cyber-bullying behaviours have been adapted from previous measurements of traditional bullying. Dooley et al. (2009) argued that cyber-

bullying cannot be thought of as an electronic form of traditional bullying since this methodology overlooks the complexities of cyber-bullying behaviours. Therefore, assessing cyber-bullying behaviours as merely electronic traditional bullying behaviours is problematic, as most cyber-bullying behaviours are different than traditional bullying behaviours. More specifically, cyber-bullying behaviours are targeted towards psychological and reputational damage, whereas traditional bullying can be described as a more overt physically aggressive behaviour (Dooley et al., 2009). Therefore, scales need to be developed solely to assess cyber-behaviours rather than an adaptation of traditional bullying behaviours.

In relation to scale items, previous research has expanded from measuring cyber-bullying with one or two item measures up to 16 item measures. For example, Williams and Guerra (2007) used only one item in order to measure cyber-bullying, "I told lies about some students through e-mail or instant messaging". Similarly, Hinduja and Patchin (2008) only included two items for a cyber-bullying measurement, "have you ever performed cyber-bullying against others" and "have you ever threatened to physically harm someone or have you scared others this way online". In the past two years measurements of cyber-bullying have expanded to include more behaviours that individuals are engaging in. For example, Calvete, Orue, Estevez, Villardon and Padilla (2010) created the Cyberbullying Questionnaire (CBQ), which consisted of 16 items as an attempt to enhance previous measurements of cyber-bullying. Domains examined include cyber-bullying through e-mail, cell phone, and the internet in general. This measure did not examine new popular domains in which one might bully, for example on Facebook. Further progress was made when cyber-bullying measures began to examine

cyber-bullying from the perspective of both the perpetrator and the victim. Mishna, Cook, Gadalla, Daciuk and Solomon (2010) examined similar cyber-bullying behaviours, but went a step further and inquired about victim experiences, the emotions involved, as well as their relationship with the perpetrator. Specifically, results indicated that individuals were most often bullied by a friend (Mishna et al., 2010). However, cyber-bullying measurements still need to expand and include more behaviours that exist today. An important task for cyber-bullying research is to create a cyber-bullying measure that can encompass the growing range of cyber-bullying behaviours individuals are partaking in within different types of relationships.

**Sample.** Current cyber-bullying research has focused on a younger population, specifically ranging between elementary school and high school aged children or adolescents. Mishna et al. (2010) examined 2,186 participants from grades 6, 7, 10 and 11, and found 49.5 percent reported experiencing cyber-bullying behaviours and 33.7 percent reported engaging in cyber-bullying behaviours towards others. Similarly, Calvete et al. (2010) examined 1431 adolescent participants ranging from 12-17 years of age, and found that 44.1 percent engaged in cyber-bullying at least once. These findings illustrate that consistent frequencies of cyber-bullying have been found with participants in middle school and high school. In relation to specific cyber-bullying behaviours, Carbone-Lopez et al. (2010) found that age was an important factor when examining the frequency of cyber-bullying behaviours. Specifically, grade 10 and 11 students were found to engage in cyber-bullying behaviours more frequently than grade 9 and 12 students (Carbone-Lopez et al., 2010). Therefore, there have been age differences found within cyber-bullying research. Overall, there is a lack of adult participants, which is

problematic as internet communication tools are increasingly important for both employment and education. Topçu et al. (2008) found that students who used internet mediated communication tools for school purposes were more likely to cyber-bully compared to students attending schools without these tools integrated into everyday use. Therefore, given that these tools are integrated into everyday life within an adult population through the process of completing post-secondary education or the in the work force, an adult sample is important to examine.

**Interpersonal perspective.** Cyber-bullying literature has examined different behaviours individuals engage in and experience, as well as the impact of these behaviours; however there is no literature relating this phenomenon to an interpersonal relationship perspective. Given the research on traditional bullying and the influences of caregivers and peer relationships (Smith, 2004; Viljoen et al., 2005), an interpersonal perspective is important to expand into the field of cyber-bullying. Specifically, this view is important when examining behaviours that can be described as anti-social, as this interpersonal perspective may provide insight into how these anti-social behaviours in interpersonal relationships may have developed or progressed. For example, if a relationship with a caregiver is cold and inconsistent, individuals may treat their peers in the same way resulting in negative peer relationships, which may involve bullying behaviours. Specific interpersonal theories and influences that will be examined include attachment theory, interdependence theory and impression management, as these perspectives may provide insight for the types of relationships individuals have with caregivers and peers, their investment within peer relationships, and also provide an

indication of how much these individuals care about the impression they make on other people.

*Attachment theory.* John Bowlby proposed attachment theory in the 1940's, to explain his observation of the relationship between infants and their caregivers and the impact these relationships have on future relationships throughout the lifespan (Bretherton, 1992). Bowlby (1951) suggested that when an infant's relationship with their mother or primary attachment figure was warm and consistent, this resulted in secure attachment relationships. If a child does not experience this type of relationship, Bowlby (1951) described this phenomenon as 'maternal deprivation'. Partial maternal deprivation is suggested to result in a variety of consequences, ranging from acute anxiety to depression, whereas complete deprivation can go as far as destroying the ability for the infant to develop satisfying future relationships, including peer relationships later in life. Bowlby (1951) explained that this detrimental relationship between infant and mother needs to be established before the infant reaches 12 months of age, as this is the time frame in which the expectations of the relationship becomes fixed and can continue throughout the lifespan. Ainsworth (1985) further operationalized attachment theory and explained the importance of attachments and bonds throughout life. Ainsworth (1989) explained that these attachments, which begin with the caregiver-child relationship, set the framework to develop kin, friendship, and intimate relationship bonds or attachments as a secure or insecure individual.

Drawing on both Bowlby's and Ainsworth's theory of attachment, Bartholomew proposed a four-category model of attachment (Bartholomew & Horowitz, 1991). Bartholomew took attachment theory one step further and applied this four-category

attachment model to an adult population. The four-category model is based on two dimensions: approach-avoidance and anxiety (Griffin & Bartholomew, 1994). The four categories used to classify adult attachments included a secure attachment and three insecure attachment patterns (fearful, preoccupied and dismissing; Bartholomew, 1990).

The most ideal attachment pattern, secure, is associated high levels of approach with others and low levels of anxiety. This results from warm and consistent caregiving, thereby allowing the individual to feel a sense of worth, safety and ability to approach others (Bartholomew & Horowitz, 1991). Secure individuals also have expectations of others, such as being accepting (Bartholomew & Horowitz, 1991). A secure foundation also assists individuals to continue to create secure relationships with others throughout the lifespan including family and peers (Bartholomew, 1990). Bartholomew and Horowitz (1991) suggested that this type of attachment was associated with warmth and caregiving, as well as having others as a secure base in a healthy way. In relation to friendships, secure individuals have high ratings of friendship involvement and balance of control in friendships. Secure individuals also tend to have higher levels of intimacy and confidence (Bartholomew & Horowitz, 1991). Given the involvement secure individuals put forth in their relationships, this type of attachment pattern would most likely not be associated with cyber-bullying behaviours. More specifically, engaging in cyber-bullying is thought to be intentional and aggressive, which is not consistent with the warm approach secure individuals have within all relationships.

The first insecure attachment type that will be discussed is the fearful attachment style, which is the opposite of secure (Bartholomew, 1990). Specifically, fearful individuals have high levels of avoidance and high levels of anxiety. This attachment

style is typically associated with children who have been rejected by their caregivers, which consequently leads to fear of rejection and mistrust towards others (Bartholomew, 1990). Overall, fearful individuals are found to be low in intimacy, have low levels of reliance on other people, low levels of confidence, and are more likely to be exploited (Bartholomew & Horowitz, 1991). Horowitz, Rosenberg and Bartholomew (1993) explained that fearful individuals tend to have issues with introverted and sub-assertive interpersonal problems. Henderson, Bartholomew and Dutton (1997) examined a sample of abused women and found that fearful individuals received the most abuse compared to other attachment patterns. Furthermore, fearful individuals have a difficult time leaving problematic relationships and standing up for themselves (Henderson et al., 1997). Given these findings, individuals with a fearful attachment style may be more likely to have negative experiences within their peer relationships, which may include cyber-bullying. Furthermore, if a fearful individual experiences cyber-bullying behaviours, they may be less likely to remove themselves from the peer relationship. Additionally, a cyber-victimized individual with a fearful attachment pattern may be less likely to report this cyber-bullying experience to someone else, since this attachment pattern is associated with low self-disclosure (Bartholomew & Horowitz, 1991). In contrast, Bookwala and Zdaniuk (1998) found that couples in reciprocal aggressive relationships rated high in fearful attachment patterns. Therefore, fearful individuals may also participate in cyber-bullying behaviours potentially as an anonymous method to divulge their frustration regarding others because they have been rejected.

Another insecure attachment style is preoccupied attachment. Preoccupied individuals are thought to show high levels of approach, but also high levels of anxiety

(Bartholomew & Horowitz, 1991). This attachment style is theorized to develop from having experienced inconsistent or insensitive parenting, which can create an over-dependency in relationships as an adult (Bartholomew, 1990). Specifically, preoccupied individuals often cling to relationships and feel uncomfortable when not in a relationship (Domingue & Mollen, 2009). Overall, preoccupied individuals idealize their relationships and have high levels of self-disclosure, often at an inappropriate level (Bartholomew & Horowitz, 1991). In relation to abuse, Henderson, Bartholomew, Trinke and Kwan (2005) found that if either couple in a relationship is preoccupied, the likelihood of abuse increases. Moreover, Henderson et al. (1997) found that preoccupied individuals in abusive relationships were more likely to leave the relationship, but also more likely to return to an abusive relationship. Henderson et al. (1997) suggested this was a ploy to create changes in the relationship. The same reaction would be expected if a preoccupied individual experienced negative behaviours within peer relationships. For example, if a preoccupied individual experienced bullying they may threaten to end the friendship only to return at a later time. A cyber-victimized individual with a preoccupied attachment pattern may be more likely to report cyber-bully behaviour, since a preoccupied attachment pattern is associated with high levels of expressiveness and approach to others (Bartholomew & Horowitz, 1991).

The final insecure attachment pattern is the dismissing attachment. Bartholomew (1990) suggested that dismissing individuals were characterized by low levels of anxiety and high levels of avoidance. This attachment pattern is thought to stem from the caregiver being emotionally unavailable, resulting in the individual being avoidant and negative towards others. Moreover, individuals with a dismissing attachment pattern are

found to be very independent, with a lack of interest in relationships with other people (Bartholomew, 1990). Domingue and Mollen (2009) further explained that dismissing individuals put themselves first and relationships are viewed as secondary. Additionally, dismissing individuals are thought to be cold, vindictive, confident, and to have low levels of closeness within their relationships (Bartholomew & Horowitz, 1991).

Therefore, individuals with a dismissing attachment pattern may be more likely to cyber-bully others, since there is a lack of interest in other relationships (Bartholomew, 1990). Moreover, given that individuals with a dismissing attachment pattern are found to be excessively cold as well as highly self-confident, these characteristics may provide them with the necessary frame of mind in order to put others down (Bartholomew & Horowitz, 1991).

An important perspective to review within relationship research is interactions among insecure individuals. Domingue and Mollen (2009) found that insecure-insecure and secure-insecure pairs have more negative communication in comparison to secure-secure pairs. This finding emphasizes that cyber-bullying may be more prevalent in relationships involving insecure individuals. In relation to specific attachment patterns, both preoccupied and fearful individuals are found to show dependency on others and are more likely to suffer from abuse in romantic relationships (Bartholomew, 1990; Henderson et al., 1997). These characteristics may put fearful and preoccupied individuals at a higher risk of abuse from other relationships (ie. peers), for example being cyber-bullied. In contrast, individuals with a dismissing attachment pattern may be more likely to cyber-bully others since these individuals demonstrate interpersonal problems involving being dominant, vindictive, and cold (Horowitz et al., 1993). Overall,

attachment and interpersonal relationship literature suggested that there are interpersonal relationship differences between insecure and secure individuals. These differences may be relevant when examining cyber-bullying literature, since attachment relationships are relevant to the proper development of interpersonal relationships, specifically, how someone may treat another person through technological communication.

***Interdependence theory.*** Another important aspect of interpersonal relationships that may be relevant to cyber-bullying behaviours is interdependence within relationships. Examining cyber-bullying through an interdependence investment model will offer an additional interpersonal angle and may also reinforce the role that interpersonal relationships play in cyber-bullying. The Investment Model examines interdependence within romantic relationships and friendships through four behaviours: commitment, satisfaction, quality of alternatives, and investment (Rusbult, Martz, & Agnew, 1998). Rusbult et al. (2005) explained that interdependence promotes confidence in the self, which in turn promotes well-being in other relationships. A higher level of interdependence was explained as the key to overall satisfaction (Rusbult et al., 2005). In relation to conflict, Rusbult and Van Lange (2003) found that people within relationships are more likely to engage in pro-social acts rather than conflict within their relationships if they indicate high levels of interdependence. Therefore, if individuals are low in the four discussed areas associated with interdependence, they may be more likely to engage in negative acts within their relationships. If individuals are low in satisfaction, commitment, and investment then they may not care about repercussions if they engage in negative acts within their relationships. Additionally, if individuals also believe they have potential alternative relationships they may have nothing stopping them from

engaging in negative behaviours within their relationships. In this way, interdependence would be important to examine in relation to cyber-bullying because this would be an example of a negative act within a relationship. Specifically, individuals low in interdependence may be more likely to engage in cyber-bullying, as they would rate lower in commitment, satisfaction, and investment, and have other relationship alternatives. In contrast, research has indicated that individuals who have been betrayed within relationships are more likely to forgive if they rate high on interdependence measured by the investment model categories (Finkel, Rusbult, Kumashiro, & Hannon, 2002). In relation to cyber-bullying, victims of cyber-bullying may be more likely to forgive their bully and remain in these relationships if they are high in interdependence. This forgiveness may also make them more vulnerable to be bullied again within the same relationships. Overall, the Investment Model is important to examine in relation to cyber-bullying, as individuals low in interdependence may be the ones engaging in these negative behaviours.

***Impression management.*** Another interpersonal theory that would be relevant to engaging in cyber-bullying behaviours is Impression Management. Zapf and Einarsen (2003) explained that enhancing or protecting one's self-esteem is a basic human motive that can influence behaviour in social situations. Zapf and Einarsen (2003) further explained that bullying can be a self-regulatory mechanism of self-esteem protection. Therefore, in order to sustain a high impression of oneself bullying others may be an easy way to increase self-esteem. Specifically, Gendron, Williams and Guerra (2010) found that self-esteem significantly predicted bullying perpetration in a sample of elementary, middle and high school students. Furthermore, Bolino and Turnley (2003) found that

there are five impression management tactics that individuals commonly use including ingratiation, self-promotion, exemplification, supplication and intimidation. Specifically, intimidation is a tactic used that includes fear, pressure, threats and bullying. In relation to online networking, Krämer and Winter (2008) described that individuals with high self-esteem put more effort into the impression they make on others. These findings indicated that individuals with high self-esteem may not only be worried about the impression they make on others online, but also may be engaging in bullying behaviours. Therefore, impression management is an important aspect to examine in relation to cyber-bullying given that individuals use bullying tactics to protect their self-esteem and self-image.

**A personality perspective.** Personal relationships researchers have also proposed that one's personality may influence the behaviours that we engage in with close others (Bartholomew, 1990). The dark triad of personality, specifically psychopathy, narcissism and Machiavellianism is an area of personality that has been found to be associated with the dark side of relationships (Baughman et al., 2012). Traditional bullying research has established a strong personality influence, which found associations with the dark triad of personality (Baughman et al., 2012; Sutton & Keogh, 2000). As a result of these strong personality findings in traditional bullying research, it is also important to examine personality in relation to cyber-bullying behaviours, specifically the dark triad of personality including narcissism, Machiavellianism and psychopathy.

**Narcissism.** Narcissism involves seven main components including authority, superiority, vanity, entitlement, self-sufficiency, exploitativeness, and exhibitionism (Raskin & Terry, 1988). An important aspect of narcissism relevant to bullying is vanity

or high self-worth. Specifically, Raskin and Terry (1988) suggested that narcissistic individuals have a problem regulating high levels of self-esteem, which can translate into aggressive behaviours towards others and even devaluing others as a defense mechanism. Similarly, Jones and Paulhus (2010) found that narcissistic individuals can react aggressively when their ego feels threatened. For individuals who can regulate self-esteem properly, high levels of self-esteem have been associated with comfort relying on others, effective communication and trust, comfort being close to other people, and a low level of fear of being abandoned by others (Davila, Hammen, Burge, Daley & Paley, 1996). Given these findings, problems regulating self-esteem in narcissistic individuals may contribute to aggression and negative relationships with others. Furthermore, in recent research narcissism has been linked to engaging in bullying behaviour with adults. Specifically, Baughman et al. (2012) found that narcissism was significantly related to engaging in bullying behaviours in university sample. Furthermore, narcissistic individuals were more likely to engage in indirect bullying behaviours rather than direct bullying (Baughman et al., 2012). Although research has been done examining the link between narcissism and bullying, no research has been done examining the link between this personality characteristic and cyber-bullying.

***Machiavellianism.*** Kerig and Stellwagen (2010) described Machiavellianism as a tendency to exploit or manipulate others for personal gain. Furthermore, Kerig and Stellwagen (2010) explained that Machiavellianism has been associated with bullying and lack of empathy towards their victims in school-aged children. Specifically, children rating high in Machiavellianism have been found to bully others through rumour spreading and by excluding others (Kerig & Stellwagen, 2010). In an adult sample,

Baughman et al. (2012) also found that Machiavellianism was significantly associated with engaging in bullying behaviours. Additionally, McIlwain (2003) described Machiavellianism as a “sneaky power” involving social perceptiveness. Therefore, Machiavellianism may be associated with cyberbullying as this form of bullying can be anonymous and provide that “sneaky” edge. In relation to an interpersonal perspective, Kerig and Stellwagen (2010) described that Machiavellianism has also been linked to impression management and social acuity skills, which supports the inclusion of an impression management measurement in the present research study. Previous research has consistently established a connection between bullying and Machiavellianism, but similar to narcissism, no research has been done linking cyber-bullying and Machiavellianism.

***Psychopathy.*** Little is known about the relationship between psychopathy and bullying. However, Baughman et al. (2012) recently found that psychopathy held the strongest associations with bullying in comparison to narcissism and Machiavellianism in an adult sample. Kerig and Stellwagen (2010) described psychopathy as being comprised of impulsivity, narcissism, and callous-unemotional traits, which refer to a lack of guilt or remorse. Fanti, Demetriou and Hawa (2012) recently found that callous-unemotional traits were longitudinally related to cyber-bullying behaviour. Psychopathy is described as a dark interpersonal style, which is related to aggression, antisocial behaviours and severe conduct problems (Kerig & Stellwagen, 2010). Given that antisocial behaviours and conduct disorders were related to engaging in traditional bullying behaviours, psychopathy is an important construct to examine in relation to cyber-bullying behaviours.

## **Research Question**

The goal of study 1 was to establish a comprehensive cyber-behaviours measure. This measure aimed to examine the wide range of cyber-behaviours individuals engage in towards their friends, acquaintance, and strangers. Additionally, this measure also aimed to examine the cyber-behaviours individuals have experienced as a victim from a friend, acquaintance and stranger. In study 2, the goal was to determine if interpersonal and personality characteristics influence whether individuals engage in or experience cyber-bullying behaviours.

## **Hypotheses for Study 2**

**(1) Expected findings between attachment and cyber-bullying.** I would expect that an attachment measure would provide insight to attachment style differences when examining cyber-bullying behaviours, as well as cyber-victimization experiences. First, I expect that higher reports of cyber-bullying behaviours would be associated with a dismissing attachment style. Bartholomew and Horowitz (1991) suggested that a dismissing attachment style was associated with a negative regard towards others, coldness and vindictiveness, and therefore would be the attachment pattern most relevant to engaging in cyber-bullying behaviours towards others.

In contrast, I would expect a fearful or preoccupied attachment pattern to be related to more cyber-victimization compared to other attachment styles. Henderson et al. (1997) explained that both fearful and preoccupied individuals are more likely to be in abusive relationships compared to secure and dismissing individuals. This finding suggested they may also be more likely to experience abusive behaviours from peers, for example cyber-bullying. Furthermore, Bartholomew and Horowitz (1991) explained that

individuals with a fearful attachment pattern are more exploitable compared to other attachment styles and may therefore be more vulnerable to cyber-bullies. Additionally, Bartholomew and Horowitz (1991) suggested that preoccupied individuals are overly expressive, which may create a vulnerability for being cyber-bullied because of the attention they may draw to themselves.

Additionally, I predict that a secure attachment will not be associated with engaging in cyber-bullying behaviours, or experiencing cyber-victimization, since security is associated with healthy interpersonal relationships (Bartholomew, 1990).

**(2) Relationship between interdependence and cyber-bullying.** For individuals who report engaging in or experiencing cyber-bullying behaviours, I expect lower levels of friendship satisfaction, commitment, quality of alternatives and investment in comparison to individuals who do not engage in cyber-bullying behaviours. This is expected because a lower level of interdependence is related to engaging in antisocial acts and conflict (Rusbult & Van Lange, 2003). In contrast, I expect high levels of interdependence to be evident with non-bullies and non-victims as this is associated with overall relationship satisfaction.

**(3) Relationship between impression management and cyber-bullying.** I expect that individuals who engage in cyber-bullying behaviours to have higher scores on an impression management measure in comparison to individuals who do not engage in cyber-bullying behaviours. This result is expected given that a tactic of impression management is intimidation, which can include threats and bullying (Bolino & Turnley, 2003).

**(4) Relationship between the dark triad and cyber-bullying.** I expect that individuals who engage in cyber-bullying behaviours will score higher on all three personality measures within the dark triad including narcissism, Machiavellianism and psychopathy in comparison to individuals who do not engage in cyber-bullying behaviours. This result is expected given that narcissism is linked to aggression and exploitation (Raskin & Terry, 1988), Machiavellianism is related to exploitation and manipulation (Kerig & Stellwagen, 2010), and psychopathy is associated with callous behaviours (Kerig & Stellwagen, 2010).

### Study 1

#### Method

**Participants.** 398 participants completed one of two online surveys creating a Trent University unsupervised sample (N= 310) and an in-lab supervised Trent University sample (N= 88). After the data were examined for missing cases, the final sample included a total of 396 participants, including 308 from the unsupervised Trent University sample and 88 from the supervised Trent University in-lab sample (See Missing Data section below). The average age of participants was 21 ( $SD= 4.89$ ) and majority of participants were female (82%) and of Caucasian decent (82%) (See Table 1). The demographic information was also broken down by sample, which indicated some differences between the two samples.

The demographic results revealed a significant difference in terms of participant age,  $t(217.5) = 2.16, p < 0.05$ . Specifically, the Trent unsupervised students were older ( $M = 20.82, SD = 5.21$ ) compared to the Trent supervised participants ( $M = 19.81, SD = 3.40$ ). Next, the participant's perceived close friends, non-close friends, acquaintances,

Facebook friends, and university friends were examined (See Table 2). Interestingly, when asked about total friends, acquaintances and Facebook friends, participants reported more Facebook friends than total friends. This finding indicated that these participants added individuals to their Facebook account other than who they considered to be some sort of 'friend'. This friendship information was further broken down by sample and results indicated there were no significant differences between samples when asked about these different friendships (data was summarized by sample in Appendix A).

Furthermore, participants were asked how frequently per week they communicated through various forms of technological communication (e.g. e-mail, Facebook, Twitter) (See Table 3). Results indicated the most common way to communicate was through Facebook ( $M = 4.59$ ,  $SD = 2.04$ ) and texting ( $M = 5.26$ ,  $SD = 1.72$ ). Results have also been broken down by sample. Results indicated significant differences between samples when asked about the different types of communication tools used. First, there were significant differences between the two samples when it came to how frequently the participants communicated through Trent University e-mail  $t(393) = -3.18$ ,  $p < 0.01$ . Specifically, the supervised participants reported using their Trent University email more ( $M = 3.98$ ,  $SD = 1.94$ ) compared to unsupervised participants ( $M = 3.24$ ,  $SD = 1.9$ ). This indicated that supervised participants reported using Trent University email more than 5-6 times per week. Furthermore, there were also significant differences between the samples regarding frequency of communication through MSN instant messaging,  $t(157.6) = 2.18$ ,  $p < 0.05$ . . More specifically, unsupervised participants reported engaging in more MSN communication ( $M = 1.69$ ,  $SD = 2.11$ ) in comparison to the supervised participants ( $M = 1.18$ ,  $SD = 1.85$ ).

Table 1  
*Summary of demographic information for study 1*

	Overall Sample (N=396)	Unsupervised (N=308)	Supervised (N=88)
Age (mean, SD)	20.59 (4.89)	20.81 (5.20)	19.81 (3.40)
Gender			
Female	82.30	81.20	86.40
Male	17.40	18.80	13.60
Ethnicity			
Caucasian	82.30	83.70	80.70
Black	6.30	6.20	6.80
Asian	8.60	9.10	6.80
First Nations	0.80	1.00	-
Other	1.30	-	5.70
Education Completed			
High school Only	-	-	-
1 <sup>st</sup> Year University	58.60	51.90	82.60
2 <sup>nd</sup> Year University	29.00	33.70	12.80
3 <sup>rd</sup> Year University+	10.70	12.20	4.70
Completed Degree	0.50	0.60	-

*Note.* 3<sup>rd</sup> Year University+=3<sup>rd</sup> Year University, 4<sup>th</sup> Year University and 5<sup>th</sup> Year University combined.

Table 2  
*Summary of mean, standard deviations, medians, and range values for number of friendships*

	X (SD)	Median (Range)
Overall sample N=396		
Total friends	78.32 (128.67)	40.00 (2-1200)
Close friends	9.08 (10.76)	6.00 (1-100)
Non-close	38.07 (74.92)	20.00 (0-900)
Acquaintances	57.67 (323.34)	10.00 (0-5746)
Facebook	389.08 (246.50)	357.50 (0-1256)

*Note.* Each category represents the number of friends indicated by each participant.

Specifically, this result indicated that unsupervised Trent University students reported using MSN more than 1-2 times per week. The two samples also significantly differed from each other when it came to email use,  $t(392) = -2.67$ ,  $p < 0.01$ . Supervised participants reported the most e-mail communication ( $M = 4.43$ ,  $SD = 1.73$ ), whereas Trent University unsupervised participants reported significantly less ( $M = 3.83$ ,  $SD = 1.91$ ). These results indicated that supervised Trent students used e-mail communication more than 7-8 times per week, whereas unsupervised Trent students used e-mail on average more than 5-6 times per week. Lastly, significant differences between the two samples were found for communication through text,  $t(193.8) = -2.37$ ,  $p < 0.05$ . Results indicated that supervised participants communicated through text more often ( $M = 5.58$ ,  $SD = 1.3$ ) compared to unsupervised participants ( $M = 5.17$ ,  $SD = 1.81$ ).

Table 3  
*Summary of means and standard deviations for types of technological communication*

	Overall (N=396)	Unsupervised (N=309)	Supervised (N=88)
Trent e-mail	3.41 (1.93)	3.24 (1.90)	3.98 (1.94)
Hotmail	2.47 (2.04)	2.46 (2.06)	2.49 (1.96)
Yahoo	0.32 (1.13)	0.33 (1.16)	0.25 (1.04)
Gmail	0.58 (1.52)	0.55 (1.49)	0.69 (1.61)
Internet provider	0.36 (1.21)	0.39 (1.26)	0.24 (1.04)
Prev. school e-mail	0.21 (0.80)	0.22 (0.79)	0.19 (0.84)
Other email	0.26 (1.01)	0.26 (1.02)	0.24 (0.99)
Facebook	4.59 (2.04)	4.59 (2.06)	4.60 (2.00)
MySpace	0.07 (0.43)	0.08 (0.45)	0.05 (0.34)
Twitter	0.33 (1.15)	0.31 (1.12)	0.40 (1.23)
MSN	1.57 (2.06)	1.69 (2.11)	1.18 (1.85)
iChat	0.05 (0.30)	0.06 (0.33)	0.02 (0.15)
Texting	5.26 (1.72)	5.17 (1.81)	5.58 (1.30)
E-mail	3.96 (1.89)	3.83 (1.91)	4.43 (1.73)
Facebook chat	2.45 (2.23)	2.45 (2.24)	2.44 (2.21)
Skype	1.42 (1.74)	1.36 (1.74)	1.60 (1.74)
Chat rooms	0.10 (0.54)	0.09 (0.47)	0.14 (0.75)
Forums	0.59 (1.37)	0.56 (1.31)	0.66 (1.56)
Other	1.11 (2.00)	1.09 (1.96)	1.18 (2.17)

*Note.* Participants were asked to indicate the frequency per week they engaged in these forms of communication.

**Procedure.** Trent participants were recruited through the Psychology department's research pool. Trent University students were awarded one credit towards their research participation, which awarded them 1% towards a potential total of 4% bonus marks for participating in research.

All participants completed the research study on a computer and Trent University students had a choice of coming into the lab or completing this study online unsupervised. To begin, all the participants read and signed an informed consent form (See Appendix D). Next, participants provided demographic information followed by the Cyber-Behaviours Scale. Once the demographic form and the Cyber-Behaviours Scale were completed a debriefing form was provided to the participants (Appendix E).

## **Materials.**

*Demographics.* Participants were asked to report on a series of demographic questions including personal information (e.g. gender, age, ethnicity, marital status, and education level) (See Appendix F). Participants were also asked about their use of technology (e.g. how often per week the participant used email, Social Networking websites, instant messaging, and other technological communication methods).

*Cyber-behaviours scale.* To create a comprehensive survey of cyber behaviours, I compiled a list of items from previously published work and generated a longer list with the help of approximately 50 third year undergraduate students. These students were asked to brainstorm about different behaviours and interactions on the internet. By doing this, we were able to compile a list of how individuals communicate over the internet, which would be potential outlets for cyber-bullying behaviours. Furthermore, this method also helped develop a list of the types of behaviours individuals engage in towards each other on the internet or through text messaging. Overall, a comprehensive list was formed that involved online behaviours including gossip, negative remarks, exclusion, sending viruses, spreading sexual material, blackmailing and threats. The final measure included 47 items in each of six subscales: cyber behaviours that people engaged in towards friends, acquaintances, and strangers; and cyber behaviours that participants personally experienced from friends, acquaintances, and strangers (See Appendix G).

## **Results and Discussion**

**Data clean up.** Descriptive statistics were completed to ensure the assumptions for multivariate analyses were achieved. Multivariate normality is an assumption required for multivariate data analysis, so this requirement needed to be assessed before analyses

were continued (Tabachnick & Fidell, 2007). Multicollinearity and singularity were also important to examine as extreme values can severely influence multivariate analyses (Tabachnick & Fidell, 2007).

**Missing data.** The dataset of 398 participants were first examined for missing data. Right away the Facebook Honesty Box items (items 11-13 of the CBS) were removed from each of the six subscales because very few participants responded to these items. Additionally, it was decided that participants who did not complete at least 80 percent of the remaining 282 items of the Cyber-Behaviours Scale (44 items for each of 6 subscales) were deleted from the analyses. After examining the data, 2 participants had completed less than 80 percent of the survey (range of 0 – 67 percent) and were therefore deleted from the sample leaving a total of 396 remaining participants. The two participants removed were in the unsupervised Trent University sample. All supervised participants completed more than 80 percent of the survey.

**Normality and outliers.** Normality was assessed by calculating the skewness values for each individual item, as well as by examining scatter plots to ensure linearity. Significance of skewness for each item was evaluated by dividing the skewness statistic by the standard error, and comparing this value to  $z = \pm 2.58$  to determine significance (Tabachnick & Fidell, 2007). If the skewness value was higher or lower than  $z = \pm 2.58$ , this indicated skewness and therefore normality was rejected. Results indicated the majority of items with the exception of a few were positively skewed. The data were expected to be positively skewed as it was anticipated that participants would most often select the response 'Never' when asked if they engaged in or experienced cyber-bullying behaviours. Therefore, transformations were not attempted as this was the expected

result. Next, the most highly skewed items were examined through scatterplots to examine multivariate normality. These scatterplots indicated that multivariate normality was satisfied, and the relationships among the examined items were linear. Next, the data were also screened for outliers by calculating +/- three standard deviations from the mean, and comparing these values to the minimum and maximum values for each item (Tabachnick & Fidell, 2007). Many items were found to have multivariate outliers. This was expected considering majority of participants were expected to select 'Never' when asked if they have experienced or engaged in cyber-bullying behaviours. Therefore the participants who reported that they engaged in or experienced cyber-bullying were likely to be an outlier. However, since this study aimed to examine the individuals who did report engaging in or experiencing cyber-bullying behaviours the outliers remained in the analyses.

***Multicollinearity and singularity.*** Multicollinearity was assessed by examining the correlation matrix for each of the six subscales to determine how related each item was to each other. Items that indicated a correlation above the 0.9 cut-off were flagged as multicollinear, meaning they are related at a level above what is considered appropriate (Tabachnick & Fidell, 2007). Overall, a few combinations of items were found to be multicollinear. For example, after examining behaviours engaged in towards an acquaintance four items were highly related (above 0.9). Taking a naked photo of an acquaintance and sending it to other people (item 39) was highly related to hacking into an acquaintance's Social Networking account (item 32), sending an acquaintance a virus on purpose (item 35), posting naked photos of an acquaintance on the internet (item 38), as well as recording sexual videos of an acquaintance and sending this video to others

(item 41). Overall, these multicollinear items might suggest redundancy in the item pool, or alternatively, may suggest these behaviours are engaged in by the same participants.

**Analyses.** After the data for the two samples were cleaned, a series of analyses were executed to evaluate the structure and items within the Cyber-behaviours scale. To begin, a factor analysis with varimax rotation was attempted on the Cyber-behaviours Scale. Results across the six sections of the scale were inconsistent, which indicated measurement issues with the scale. For example, certain items would group together when examining friends; however a completely different set of items would group together when examining acquaintances. Furthermore, since most participants reported that they had never or rarely engaged in or experienced most of the cyber-behaviours this may have caused the factor analysis to pick up the underlying measurement issues instead of the factor model. More specifically, the positively skewed distributions for each item were causing the factor analyses to group together items based on this measurement issue, rather than grouping the items based on the underlying factor similarity. Additionally, since multicollinearity and redundancy among items was established while screening the data, this also may have caused the factor analyses to pick up on measurement problems resulting in inconsistent factors (Tabachnick & Fidell, 2007). Next, items were evaluated based on whether they fit a factor using the cut-off of 0.4. Items that did not load on any factors were deleted to see if factor consistency could be established once problematic items were removed. Even after this process the factor analyses could not establish consistent results among the six subscales, and for this reason factor analyses were abandoned and another approach was taken.

Next, a cluster analysis was attempted on the Cyber-behaviours scale to see if this approach yielded the same measurement issues, or if consistent items grouped together. Similar to the factor analysis, the cluster analysis was not able to analyze the data properly given how positively skewed the data was. Because of this, the cluster analysis could not identify similar items and had no consistency establishing which items clustered together. More specifically, the cluster analyses could not indicate any consistent branching of items since most participants reported they had ‘Never’ experienced or engaged in cyber-bullying behaviours. Given that the data violated multivariate normality – an assumption of multivariate analyses, both the factor analyses and cluster analyses approaches failed because of these measurement errors and a different approach needed to be taken to identify related items.

*Revising the cyber-behaviours scale.* After both the factor analyses and cluster analyses failed to establish consistent factors for the Cyber-behaviours scale, a non-statistical approach was taken to identify similar items in an attempt to condense items and eliminate redundant items. Four lab members (3 psychology graduate students and one fourth year psychology honours student) were asked to group the 47 cyber-behaviour items into what they believed were ‘similar behaviours’. Each student was given a sheet of paper with all of the 47 items listed on it. They were instructed to separate and sort each item into categories. Once they completed this task, the categories were entered into an excel file to examine each student’s groupings of behaviours and the similarities between each of their groups.

After examining each of the students’ categories, there was considerable overlap among the items that each student grouped together. Once the items within each category

were reviewed it was determined that a few items were very similar and could be combined to reduce redundancies. Specifically, if items involved similar behaviours or a similar domain for carrying out the behaviours, they were combined. For example, an original item about posting a rude comment on a photo and an original item about posting a rude comment on a status update were combined into one item: 'Someone posted a rude comment on a photo or status update that I posted on the internet'. It was determined the list of behaviours could be reduced from 44 to 32 items and that there were three main cyber-behaviour groups. The first group consisted of traditional bullying behaviours such as gossip and making fun of someone on the internet. The second group consisted of personal attack bullying behaviours, which included negative remarks regarding weight or sexual orientation. Finally, the third group included malicious bullying behaviours such as blackmail or threats. The items in each can be viewed in Table 4. Using these three groups, similar items were combined to reduce redundancies and the items that involved giving permission were deleted on the basis that by giving permission, the behaviour no longer qualified as bullying; if individuals indicated that they had not given permission, this was interpreted as bullying. Giving permission could not qualify as positive cyber-behaviour item because they weren't as overtly positive to participants as having nice things said about you, for example. After revisions were made the final scale was reduced to 32 items, including 28 negative cyber-behaviours and 4 positive cyber-behaviours, which were replicated throughout each of the six subscales.

Table 4a  
*Summary of the Three Cyber-bullying Categories and Positive Cyber-behaviours*

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Traditional Cyber-behaviour Items

1. Someone rejected my friend request on Facebook. (original 1)
2. Someone said negative things about me, or made fun of me on the internet or through instant messaging. (combination of original 2, 9, 10, 14, 15)
3. Someone purposely excluded me from an online conversation, online group or online event. (original 3)
4. Someone spread a rumour about me over the internet, Social Networking websites, or other forms of instant messaging (cellphone). (original 4)
6. Someone revealed embarrassing or confidential personal information about me on the internet. (original 7)
7. Someone has forwarded a private e-mail of mine to at least one of their friends without my permission. (original 8)
8. Someone called me inappropriate names on the internet. (original 16)
9. Someone posted a rude comment on a photo or status update that I posted on the internet. (combination of original 17, 18)
13. Someone made a Facebook group or website made about me, with the purpose of making fun of me. (original 23)
21. I have received unwelcome comments from someone through the internet or other forms of instant messaging (cellphone). (original 30)
28. I have received messages on the internet from someone who I purposely did not respond to. (original 43)

Personal Attack Cyber-behaviour Items

11. Someone posted embarrassing photos of me on the internet without my permission. (original 21)
  14. Someone made a negative remark about my physical appearance (e.g. weight) on the internet or through instant messaging. (original 24)
  15. Someone made a negative remark about my religion on the internet or through instant messaging. (original 25)
  16. Someone made a negative remark about my sexual orientation on the internet or through instant messaging. (original 26)
  17. Someone made a negative remark about my disability on the internet or through instant messaging. (original 27)
  18. Someone made a sexist comment made about me on the internet. (original 28)
  19. Someone made a racist remark made about me on the internet. (original 29)
  25. I have received unwanted sexual comments from someone through the internet or instant messaging. (original 37)
  26. Someone sent a naked photo of me to other people or posted it on the internet without my permission. (combination of original 38, 39)
  27. Someone sent a sexual video of me to other people or posted it on the internet without my permission. (combination of original 40, 42)
-

Table 4b  
*Summary of the Three Cyber-bullying Categories and Positive Cyber-behaviours*

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Malicious Cyber-behaviour Items

- 12. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be someone using a fake account. (original 22)
- 22. I believe someone has hacked into my computer or personal accounts (e.g. email or Social Networking account). (combination of original 31, 32, 33)
- 23. I believe someone has purposely sent me a lot of spam with the intention of crashing my computer. (original 34)
- 24. I believe someone has sent my computer a virus on purpose. (original 35)
- 29. Someone has stalked me online. (original 45)
- 31. Someone has blackmailed me through the internet. (original 46)
- 32. Someone made a threat towards me through the internet or other forms of instant messaging (cellphone). (original 47)

Positive Cyber-behaviour Items

- 5. I have had someone say nice things about me on the internet or through instant messaging. (original 5)
  - 10. I have had someone post a photo of me on the internet because they thought I looked good in it. (original 19)
  - 20. I have had someone make a positive remark made about me on the internet. (new)
  - 30. I have had someone defend me on the internet after someone made negative remarks about me online. (new)
- 

*Note.* ‘Someone’ can be replaced with a friend, an acquaintance, or a stranger.

***Testing the revised scale.*** Once the scale was revised each data set from the two samples in Study 1 were recoded to match with the new revised scale. Specifically, the original 47 items were transformed into the revised 32 items. Some items remained untouched; however the revised items needed to be computed into a revised score. To compute the revised items, the highest score was taken from the original items that the new item was comprised of. For example, if ‘revised item 2’ was comprised of original items 2, 9, 10, 14 and 15, the highest score from those five items was selected to be their score on the ‘revised item 2’. This process was computed consecutively for each participant. By revising the scale, this also helped reduce item redundancies as indicated by the multicollinearity in the two samples. Means, standard deviations, medians, and

ranges for each of the three item groups (Traditional cyber-bullying behaviours, Personal Attack cyber-bullying behaviours and Malicious cyber-bullying behaviours) were calculated for the overall sample and each of the two sub-samples.

Comparisons between the two samples were done to examine differences between the 3 categories using a one-way ANOVA approach. Of the 18 comparisons (6 subscales – to a friend, to an acquaintance, to a stranger, friend to me, acquaintance to me, stranger to me; and 3 categories – traditional, personal attack, malicious), 3 comparisons demonstrated differences between the groups. Each of these comparisons was analyzed further using the Scheffe post hoc criterion. Specifically, when examining the ‘acquaintance to me’ behaviours the unsupervised Trent University sample was significantly different than the supervised Trent University in-lab sample for both traditional,  $F(2,416) = 4.29, p = 0.01$ , and malicious cyber-bullying behaviours,  $F(2,416) = 9.75, p = 0.00$ . For the traditional cyber-bullying behaviours participants within the supervised Trent sample reported experiencing more traditional cyber-bullying behaviours ( $M = 1.02, SD = 0.74$ ) in comparison to the unsupervised Trent sample ( $M = 0.73, SD = 0.84$ ). This indicated that supervised Trent participants reported experiencing traditional cyber-bullying behaviours 1-2 times on average, whereas unsupervised participants reported less than 1-2 times on average. For the malicious cyber-bullying behaviours, the supervised Trent participants reported experiencing more malicious cyber-bullying behaviours ( $M = 0.50, SD = 0.53$ ) compared to unsupervised Trent participants ( $M = 0.24, SD = 0.57$ ). Second, when examining the ‘stranger to me’ behaviours the unsupervised Trent University sample was significantly different than the supervised Trent sample regarding malicious cyber-bullying behaviours,  $F(2,416) = 3.56$ ,

$p = 0.03$ . Specifically, unsupervised Trent University participants reported experiencing more malicious cyber-bullying behaviours ( $M = 0.30$ ,  $SD = 0.64$ ) in comparison to the supervised Trent University sample ( $M = 0.12$ ,  $SD = 0.27$ ). Although both samples reported experiencing these behaviours between 0 and 1-2 times, the difference was still significant. Last, when examining behaviours ‘to a friend’ the unsupervised Trent University sample was significantly different than the supervised Trent University in-lab sample when examining traditional cyber-bullying behaviours,  $F(2,416) = 48.56$ ,  $p = 0.00$ . Specifically, participants in the supervised Trent sample ( $M = 0.84$ ,  $SD = 0.56$ ) reported engaging in significantly more traditional cyber-bullying behaviours towards a friend in comparison to the Trent University unsupervised sample ( $M = 0.23$ ,  $SD = 0.53$ ). These results were also presented by sample (See Table 5).

Table 5  
*Summary of mean, standard deviations, medians, range values and reliability for each category*

	Traditional			Personal Attack			Malicious		
	X (SD)	Median (Range)	Alpha	X (SD)	Median (Range)	Alpha	X (SD)	Median (Range)	Alpha
Overall sample (N=396)									
From friend	1.04 (0.83)	0.63 (0-5)	0.82	0.46 (0.52)	0.10 (0-3)	0.76	0.36 (0.52)	0.14 (0-3)	0.78
From acq.	0.71 (0.79)	0.41 (0-6)	0.88	0.30 (0.43)	0.07 (0-3)	0.84	0.20 (0.44)	0.09 (0-4)	0.86
From str.	0.34 (0.50)	0.11 (0-3)	0.92	0.18 (0.40)	0.07 (0-2)	0.93	0.27 (0.53)	0.11 (0-3)	0.87
To a friend	0.86 (0.77)	0.37 (0-6)	0.84	0.24 (0.54)	0.11 (0-4)	0.75	0.27 (0.52)	0.09 (0-4)	0.86
To an acq.	0.63 (0.72)	0.31 (0-6)	0.85	0.20 (0.55)	0.10 (0-5)	0.81	0.13 (0.45)	0.07 (0-4)	0.87
To a str.	0.67 (0.68)	0.17 (0-4)	0.78	0.17 (0.50)	0.09 (0-4)	0.91	0.15 (0.56)	0.11 (0-5)	0.91
Unsupervised students (N=308)									
From friend	1.04 (0.83)	0.63 (0-5)	0.83	0.46 (0.52)	0.10 (0-3)	0.79	0.36 (0.52)	0.14 (0-3)	0.80
From acq.	0.71 (0.79)	0.41 (0-6)	0.89	0.30 (0.43)	0.07 (0-3)	0.87	0.20 (0.44)	0.09 (0-4)	0.88
From str.	0.34 (0.50)	0.11 (0-3)	0.93	0.18 (0.40)	0.07 (0-2)	0.94	0.27 (0.53)	0.11 (0-3)	0.88
To a friend	0.86 (0.77)	0.37 (0-6)	0.87	0.24 (0.54)	0.11 (0-4)	0.79	0.27 (0.52)	0.09 (0-4)	0.87
To an acq.	0.63 (0.72)	0.31 (0-6)	0.86	0.20 (0.55)	0.10 (0-5)	0.83	0.13 (0.45)	0.07 (0-4)	0.87
To a str.	0.67 (0.68)	0.17 (0-4)	0.83	0.17 (0.50)	0.09 (0-4)	0.92	0.15 (0.56)	0.11 (0-5)	0.92
Supervised students (N=88)									
From friend	1.02 (0.72)	0.54 (0-3)	0.79	0.38 (0.44)	0.08 (0-2)	0.55	0.30 (0.49)	0.05 (0-3)	0.62
From acq.	1.02 (0.74)	0.07 (0-2)	0.80	0.38 (0.44)	0.03 (0-1)	0.54	0.50 (0.53)	0.13 (0-3)	0.36
From str.	0.30 (0.35)	0.08 (0-2)	0.74	0.13 (0.29)	0.00 (0)	0.67	0.12 (0.27)	0.01 (0-1)	-0.40
To a friend	0.84 (0.56)	0.23 (0-6)	0.54	0.15 (0.25)	0.03 (0-1)	0.38	0.26 (0.33)	0.01 (0-1)	0.13
To an acq.	0.66 (0.67)	0.26 (0-3)	0.78	0.12 (0.26)	0.01 (0-1)	0.44	0.08 (0.25)	0.02 (0-2)	0.47
To a str.	0.68 (0.44)	0.08 (0-1)	0.52	0.07 (0.17)	0.01 (0-1)	0.40	0.05 (0.18)	0.00 (0)	0.10

*Note.* From acq. = Cyber-behaviours experienced from an acquaintance; From str. = Cyber-behaviours experienced from a stranger; To an acq. = Cyber-behaviours engaged in towards an acquaintance; To a str. = Cyber-behaviours engaged in towards a stranger.

Overall, the purpose of Study 1 was to create the Cyber-Behaviours scale and test this scale with two different samples. Following initial analyses, the scale was then condensed to 32 items within each subscale and analyzed to determine cyber-bullying behaviour categories. Overall, three categories were found and the revised scale will be used in Study 2 to determine factors that are associated with engaging in and experiencing cyber-bullying behaviours.

## Study 2

Once the Cyber-behaviours scale was tested using three different samples in Study 1, Study 2 aimed to examine cyber-bullying behaviours in relation to interpersonal relationships and personality characteristics in a Trent University sample. More specifically, Study 2 aimed to determine how cyber-bullying behaviours are related to attachment relationships, interdependence within relationships, impression management, and personality characteristics including narcissism, Machiavellianism and psychopathy.

### Method

**Participants.** 145 individuals participated in this research study, however only participants who completed at least 80% of the surveys were analyzed, which left 142 participants remaining (See Missing Data). These 142 participants were analyzed to determine basic demographics, which revealed that participants were an average age of 20 ( $SD = 4.55$ ) and were 84% female vs. 15% male. Furthermore, 80% of the participants were Caucasian, 7% black, and 12% of Asian descent. Most of the participants were in 1<sup>st</sup> year university (79%), with 12% in 2<sup>nd</sup> year, and the remaining percentage between 3<sup>rd</sup> and 5<sup>th</sup> year university. Trent University students were recruited through the Psychology

department's SONA system and were awarded 1% towards a potential 4% for research participation.

**Procedure.** Participants completed the research study on a computer. First the participants read and signed an informed consent form (See Appendix H), and then participants provided demographic information. Following this, the participants completed a series of questionnaires on their interpersonal relationships, personality, and cyber-behaviours.. Information about each questionnaire can be found in the materials section below. Once the demographic form and the remainder of the questionnaires were completed, a debriefing form was provided to the participants (See Appendix I).

**Materials.**

**Demographics.** Participants were asked to report on a series of demographic questions including personal information, for example their gender, age, ethnicity, marital status, and education level (See Appendix J). Participants were also asked about certain family information. Questions included the participant's parent's marital status, their parent's geographical location relative to the participant, and how many siblings they have. Lastly, participants were asked about their use of technology, for example how often per week the participant uses email, Social Networking websites, instant messaging, and other technological communication methods. In Study 2, one question was added to the demographics questionnaire that asked participants how often they use the Honesty Box application on Facebook per week.

**Attachment representations.** The Relationship Scale Questionnaire (RSQ; Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994a, 1994b) was administered to the participants following the demographic questions, and examined the participants'

attachment relationships with their mother, father, and peers (See Appendix K). The RSQ is comprised of 17 items, which were scored on a five point scale ranging from ‘not at all like me’ to ‘very like me’. An example of an item is ‘I worry about being alone’. The RSQ examines four attachment patterns including secure, fearful, preoccupied and dismissing. To examine each attachment style in relation to engaging or experiencing cyber-behaviours, each item corresponding to a specific attachment style was summed for the RSQ, which resulted in one continuous variable for each attachment pattern.

*Interdependence.* To examine interdependence between relationships, the Investment Model Scale was used (Rusbult, Martz & Agnew, 1998). This scale examines relationships with respect to four areas including commitment level, satisfaction level, investment, and quality of alternatives (See Appendix L) items were rephrased to assess friendships instead of romantic relationships, and permission was given by the author Chris Agnew. The Investment Model Scale is comprised of four subscales including satisfaction level (6 items), commitment level (7 items) investment (6 items) and quality of alternatives (6 items). Three items were scored on a four point scale ranging from ‘Do not agree at all’ to ‘Agree completely’ and the remaining items were scored on a nine point scale ranging from ‘Do not agree at all’ to ‘Agree completely’. Examples of items include: ‘My friendships are much better than others’ friendships’ (satisfaction); ‘I am committed to maintaining my friendships’ (commitment); ‘I feel very involved in my friendships – like I have put a great deal into them’ (investment); and ‘If I weren’t friends with my friends, I would do fine – I would find another appealing person to be friends with’ (quality of alternatives) (Rusbult, Martz & Agnew, 1998).

***Impression management.*** The Personal Attributes Survey examines how individuals manage the impression they make on others (PAS; Paulhus, 1991). This survey is comprised of 20 items, scored on a five point scale ranging from ‘Very inaccurate’ to ‘Very accurate’ (See Appendix M). An example of an item includes ‘I believe there is never an excuse for lying’ (Paulhus, 1991).

***The dark triad.*** The Dark Triad of Personality scale is comprised of 27 items, and equally examines three personality constructs including Machiavellianism, narcissism, and psychopathy (Paulhus & Williams, 2002). Examples of items include: ‘It’s wise to keep track of information that you can use against people later’ (Machiavellianism); ‘I know that I am special because everyone keeps telling me so’ (narcissism); and ‘People who mess with me always regret it’ (psychopathy) (See Appendix N). The dark triad is scored on a five point scale, ranging from ‘Disagree strongly’ to ‘Agree strongly’ (Paulhus & Williams, 2002).

***Revised cyber-behaviours scale.*** The original Cyber-Behaviours Scale was revised in Study 1 from 47 items to 32 items, which included a total of 28 negative cyber-behaviours and 4 positive cyber-behaviours (See Appendix O). These items examined the different cyber behaviours that people experienced or engaged in towards friends, acquaintances, and strangers, comprising a total of six different sections. Overall, the revised Cyber-Behaviours Scale examines traditionally cyber-bullying behaviours such as gossip, personal attack cyber-bullying behaviours such as negative remarks towards another’s religion or sexual orientation, and lastly malicious cyber-bullying behaviours including blackmail and threats.

## Results

### Data clean up

Descriptive statistics were completed (N=145) to ensure the assumptions for multivariate analyses were achieved. Multivariate normality is an assumption required for multivariate data analysis, so this requirement needed to be assessed before analyses were continued (Tabachnick & Fidell, 2007). Multicollinearity and singularity were also important to examine as extreme values can severely influence multivariate analyses (Tabachnick & Fidell, 2007).

**Missing data.** The dataset of 145 participants were first examined for missing data using an 80 percent completion cut-off. Participants who did not complete at least 80 percent of the survey were not included in the analyses. After examining the data, 3 participants had completed less than 80 percent of the survey (range of 0 – 74 percent) leaving a total of 142 remaining participants. For the remaining 142 participants all analyses were completed by excluding cases list-wise, which was the default setting for SPSS.

**Normality and outliers.** Normality was assessed by calculating the skewness values for each scale, as well as by examining scatter plots to ensure linearity. Significance of skewness for each item was evaluated by dividing the skewness statistic by the standard error, and comparing this value to  $z = +/-2.58$  to determine significance (Tabachnick & Fidell, 2007). If the skewness value was higher than  $z = +/-2.58$ , this indicated significant skewness and therefore normality was rejected. Skewness was evident in the attachment scales, the interdependence scales, and the impression management scales; however the skewness levels were not worrisome as some was expected in a university sample.

Furthermore, there was also skewness found with the cyber-behaviours scale. The data were expected to be positively skewed as it was anticipated that participants would most often select the response 'Never' when asked if they engaged in or experienced cyber-bullying behaviours. Results indicated the majority of items with the exception of a few were positively skewed. Transformations were not attempted as this was the expected result. Next, the most highly skewed scales were examined through scatterplots to examine multivariate normality. These scatterplots indicated that multivariate normality was satisfied, and the relationships among the examined scales were linear.

Next, the data were also screened for outliers by calculating  $\pm$  three standard deviations from the mean, and comparing these values to the minimum and maximum values for each item (Tabachnick & Fidell, 2007). Most scales did not show evidence of outliers; however the fearful scale within the attachment measure related to a relationship with a mother indicated outliers, as did all scales within the cyber-behaviours scale. Outliers for the cyber-behaviours scale were expected considering majority of participants were expected to select 'Never' when asked if they have experienced or engaged in cyber-bullying behaviours. Therefore the participants who reported they engaged in or experienced cyber-bullying were likely to be an outlier. However, since this study aimed to examine the individuals who did report engaging in or experiencing cyber-bullying behaviours the outliers remained in the analyses.

**Multicollinearity and singularity.** Multicollinearity was assessed by examining the correlation matrix between each of the scales to determine how related each scale was. Scales that indicated a correlation above the 0.9 cut-off were flagged as multicollinear, meaning they are related at a level above what is considered appropriate (Tabachnick &

Fidell, 2007). Results indicated that most of the scales were not related at a level that was statistically inappropriate; however, six of the eighteen subscales within the cyber-behaviours scale were found to be highly related to at least one other cyber-behaviour subscale. More specifically, each of the highly related subscales concerned only the personal attack behaviours and the malicious cyber-behaviours. For example, the cyber-behaviours engaged in towards a friend subscale were highly related to malicious cyber-behaviours towards a friend, personal attack behaviours engaged in towards an acquaintance, and malicious behaviours engaged in towards a friend with relationships of 0.92, 0.96, and 0.92, respectively. Interestingly, no other subscales were highly related including the scale measuring narcissism.

### **Organizing the data**

To analyse the different types of cyber-behaviours individuals engaged in, participants were first given a score for traditional cyber-bullying behaviours, personal attack cyber-bullying behaviours, and malicious cyber-bullying behaviours. This analysis was done by calculating each participants average score for each of these three behaviours within the three different relationships. For example, a traditional, personal attack, and malicious bullying score was calculated for behaviours engaged in towards a friend, acquaintance and stranger, therefore in total there were nine bullying scales. Furthermore, these scores were also calculated for cyber-bullying behaviours each participant experienced as a victim; once again there were nine scales. Means and standard deviations for each group of the cyber-behaviours can be seen in Table 6.

**Categorizing the items.** Items were originally scored on a scale ranging from 0 – 6. Means were originally calculated based on this scoring system by averaging the

responses for items within each of the three groups (Traditional = items 1, 2, 3, 4, 6, 7, 8, 9, 13, 21, 28; Personal Attack = items 11, 14, 15, 16, 17, 18, 19, 25, 26, 27; Malicious = items 12, 22, 23, 24, 29, 31, 32). Because majority of participants reported engaging in all traditional behaviours the cut off for being a victim/bully was altered from engaging in/experiencing the item once to three times. Therefore, any traditional cyber-bullying item with a score of 3 or under was replaced with a score of zero. However, the scores for personal attack and malicious behaviours remained unchanged. These new item cut-offs were then used to calculate the new means for each of the three groups. These new group means were then used to determine if each participant engaged in or experienced that group of cyber-bullying behaviours. If the participant's average was above zero they were given a score of 1, which indicated that they were a victim/bully. If the participant's score was zero, they were given a zero indicating they were not a victim/bully.

Table 6  
*Summary of mean, standard deviations, medians, range values and reliability for each category of cyber-bullying*

	Traditional			Personal Attack			Malicious		
	<u>X (SD)</u>	<u>Median (Range)</u>	<u>Alpha</u>	<u>X (SD)</u>	<u>Median (Range)</u>	<u>Alpha</u>	<u>X (SD)</u>	<u>Median (Range)</u>	<u>Alpha</u>
<b>Victims</b>									
From friend	1.04 (0.83)	0.63 (0-5)	0.82	0.46 (0.52)	0.10 (0-3)	0.76	0.36 (0.52)	0.14 (0-3)	0.78
From acq.	0.71 (0.79)	0.41 (0-6)	0.88	0.30 (0.43)	0.07 (0-3)	0.84	0.20 (0.44)	0.09 (0-4)	0.86
From str.	0.34 (0.50)	0.11 (0-3)	0.92	0.18 (0.40)	0.07 (0-2)	0.93	0.27 (0.53)	0.11 (0-3)	0.87
<b>Bullies</b>									
To a friend	0.86 (0.77)	0.37 (0-6)	0.87	0.24 (0.54)	0.11 (0-4)	0.79	0.27 (0.52)	0.09 (0-4)	0.87
To an acq.	0.63 (0.72)	0.31 (0-6)	0.86	0.20 (0.55)	0.10 (0-5)	0.83	0.13 (0.45)	0.07 (0-4)	0.87
To a str.	0.67 (0.68)	0.17 (0-4)	0.83	0.17 (0.50)	0.09 (0-4)	0.92	0.15 (0.56)	0.11 (0-5)	0.92

*Note.* From acq. = Cyber-behaviours experienced from an acquaintance; From str. = Cyber-behaviours experienced from a stranger; To an acq. = Cyber-behaviours engaged in towards an acquaintance; To a str. = Cyber-behaviours engaged in towards a stranger.

## **Analyses**

Results examined cyber-bullying behaviours within a friend, acquaintance, and stranger relationships according to specific behaviours they were engaging in, which included traditional behaviours, personal attack behaviours, and malicious behaviours. This was done to examine which interpersonal or personality variables were associated with engaging in or experiencing specific cyber-bullying behaviours within these three relationships.

**Spearman rho correlations.** First, Spearman rho correlations were computed to understand the relationship between engaging in and/or experiencing traditional, personal attack and malicious cyber-bullying behaviours and the various interpersonal and personality variables. Spearman rho correlations were used over Pearson r correlations because the data had violated normality. Furthermore, to avoid type II error only patterns of results will be discussed.

***Victims of cyber-bullying.*** First, correlations were examined for victims of cyber-behaviours (See Table 7).

***Attachment.*** In relation to attachment security, those who experienced traditional and personal attack cyber-bullying behaviours from strangers reported lower levels of attachment security in relationships with their mother. Additionally, those who experienced malicious behaviours from a friend, as well as personal attack and malicious behaviours from a stranger reported lower levels of attachment security with their peers. In relation to attachment insecurity, those who experienced malicious cyber-bullying behaviours from a friend, as well as personal attack and malicious behaviours from a

stranger reported higher levels of the fearful attachment pattern with their peers. Overall, correlations indicated the influence of attachment insecurity on cyber-bullying.

*Interdependence.* Satisfaction within relationships was the only pattern found associated with experiencing cyber-bullying. Specifically, those who experienced malicious cyber-bullying from a friend, as well as those who experienced personal attack and malicious cyber-bullying from a stranger reported lower levels of satisfaction within relationships. Overall, no other patterns were found for commitment, quality of alternatives and investment.

*Dark triad of personality.* Patterns emerged for both narcissism and psychopathy. First, experiencing cyber-bullying from a stranger was positively associated with scores of narcissism for both traditional and malicious cyber-bullying behaviours. Secondly, the most important pattern emerged with psychopathy. Experiencing traditional, personal attack and malicious cyber-bullying behaviours was significantly associated with higher psychopathy scores in all three relationships. The strongest associations were within stranger relationships, which revealed a medium effect size.

Table 7  
*Summary of spearman rho correlations for Victims*

	Traditional			Personal Attack			Malicious		
	Friend	Acq	Stranger	Friend	Acq	Stranger	Friend	Acq	Stranger
<b>Attachment</b>									
Secure - M	0.04	-0.09	-0.18*	0.00	-0.05	-0.18*	-0.11	0.03	-0.10
Fearful - M	0.08	0.12	0.12	-0.06	-0.07	0.08	0.18*	-0.08	0.07
Preoccupied - M	-0.03	-0.02	0.11	0.05	0.01	-0.02	-0.04	0.16 <sup>T</sup>	0.04
Dismissing - M	0.09	0.03	0.05	-0.08	-0.09	0.01	0.05	-0.15 <sup>T</sup>	-0.02
Secure - F	0.07	-0.02	-0.12	-0.01	-0.03	-0.13	-0.07	0.00	-0.06
Fearful - F	0.04	0.09	-0.05	-0.03	-0.06	0.01	0.09	-0.10	0.11
Preoccupied - F	-0.04	-0.01	0.07	0.03	-0.00	0.05	0.03	0.09	0.09
Dismissing - F	0.04	0.06	-0.04	-0.06	-0.14	-0.01	0.02	-0.15 <sup>T</sup>	0.01
Secure - P	-0.03	-0.05	-0.09	0.02	-0.10	-0.14 <sup>T</sup>	-0.16*	-0.05	-0.17*
Fearful - P	0.14	0.10	0.10	-0.04	0.06	0.14 <sup>T</sup>	0.24**	0.00	0.17*
Preoccupied - P	0.10	0.14 <sup>T</sup>	0.21*	0.14	0.15 <sup>T</sup>	0.10	0.14	0.08	0.16 <sup>T</sup>
Dismissing - P	0.06	-0.02	-0.13	-0.15 <sup>T</sup>	-0.14	-0.05	0.10	-0.07	0.02
<b>Interdependence</b>									
Commitment	0.05	-0.08	-0.13	0.09	0.00	-0.10	-0.10	-0.11	-0.05
Satisfaction	-0.02	-0.04	-0.13	0.03	-0.02	-0.20*	-0.24**	-0.12	-0.18*
Investment	-0.06	-0.09	-0.03	0.15 <sup>T</sup>	0.06	-0.08	-0.09	0.02	-0.16 <sup>T</sup>
QALT	0.02	0.06	0.09	0.17*	0.07	0.07	0.15 <sup>T</sup>	-0.04	0.16*
<b>Dark Triad</b>									
Narcissism	0.04	0.09	0.19*	0.11	0.18*	0.15 <sup>T</sup>	0.06	0.10	0.19*
Machiavellian	0.17*	0.05	-0.01	-0.02	0.03	-0.04	-0.02	-0.04	0.03
Psychopathy	0.19*	0.21*	0.24**	0.22**	0.25**	0.31***	0.30***	0.22**	0.26**

*Note.* In relation to attachment M = Mother, F = Father, P = Peer; QALT = Quality of alternatives; Acq. = Acquaintance; <sup>T</sup> =  $p < 0.10$ ; \* =  $p < 0.05$ ; \*\* =  $p < 0.01$ ; \*\*\* =  $p < 0.001$ .

*Cyber-bullies.* Next, correlations were examined for engaging in cyber-bullying behaviours (See Table 8).

*Attachment.* In relation to attachment, two important patterns emerged when malicious cyber-bullying behaviours were examined among friends and acquaintances. Specifically, correlations indicated that engaging in malicious cyber-bullying behaviours with friends and acquaintances was negatively associated with security in peer relationships. Additionally, engaging in these behaviours with friends and acquaintances was positively associated with insecurity with peers, specifically the fearful attachment pattern.

*Interdependence.* Two important patterns emerged in relation to commitment and satisfaction. Correlations indicated engaging in malicious cyber-bullying behaviours towards friends, acquaintances and strangers was related to lower levels of both satisfaction and commitment.

*Dark triad of personality.* Similarly to victims, the most important pattern in relation to engaging in cyber-bullying behaviours is the association of psychopathy. Psychopathy was significantly associated with engaging in cyber-bullying behaviours in all but one of nine cyber-bullying subscales (traditional behaviours towards an acquaintance). The strongest associations were found with malicious behaviours, which yielded a medium effect size.

Table 8  
*Summary of spearman rho correlations for Bullies*

	Traditional			Personal Attack			Malicious		
	Friend	Acq	Stranger	Friend	Acq	Stranger	Friend	Acq	Stranger
<b>Attachment</b>									
Secure - M	-0.13	-0.08	-0.07	-0.12	-0.04	-0.00	-0.13	-0.15 <sup>T</sup>	-0.04
Fearful - M	-0.04	0.02	0.10	0.09	0.05	0.05	0.11	0.19*	0.02
Preoccupied - M	-0.06	-0.02	0.06	-0.04	0.01	0.06	0.06	0.04	0.06
Dismissing - M	-0.08	0.08	-0.01	0.02	-0.01	-0.12	-0.03	0.04	-0.07
Secure - F	-0.12	-0.06	0.03	-0.05	-0.10	-0.00	-0.13	-0.10	-0.01
Fearful - F	0.02	0.01	-0.08	0.07	0.07	-0.06	0.06	0.05	-0.01
Preoccupied - F	-0.06	0.03	0.13	-0.09	0.03	0.04	0.08	0.06	0.06
Dismissing - F	-0.01	-0.03	-0.13	-0.01	-0.06	-0.15 <sup>T</sup>	-0.15 <sup>T</sup>	-0.05	-0.13
Secure - P	-0.19*	0.01	0.04	-0.08	0.05	-0.00	-0.25**	-0.19*	-0.14
Fearful - P	0.07	0.01	0.04	-0.05	-0.01	-0.00	0.19*	0.21*	0.06
Preoccupied - P	0.06	-0.01	0.12	0.23**	0.08	0.13	0.16*	0.03	0.09
Dismissing - P	-0.03	-0.02	-0.07	-0.08	-0.13	-0.14 <sup>T</sup>	0.01	0.09	-0.03
<b>Interdependence</b>									
Commitment	-0.09	-0.10	-0.16 <sup>T</sup>	-0.04	-0.11	-0.23**	-0.28***	-0.24**	-0.19*
Satisfaction	-0.12	-0.07	-0.19*	-0.07	0.02	-0.13	-0.23**	-0.21*	-0.19*
Investment	-0.10	-0.03	-0.08	-0.00	-0.07	0.01	-0.05	-0.09	-0.09
QALT	-0.10	-0.10	-0.06	0.12	-0.02	0.04	-0.02	0.04	-0.05
<b>Dark Triad</b>									
Narcissism	0.10	-0.07	0.06	0.04	-0.01	0.13	0.24**	0.10	0.05
Machiavellian	0.11	0.04	0.05	-0.13	-0.14	-0.07	0.11	0.11	0.01
Psychopathy	0.23**	0.12	0.21**	0.22**	0.20*	0.31***	0.35***	0.46***	0.32***

*Note.* In relation to attachment M = Mother, F = Father, P = Peer; QALT = Quality of alternatives; Acq. = Acquaintance; <sup>T</sup> = p<0.10; \* = p<0.05; \*\* = p<0.01; \*\*\* = p<0.001.

**Overall correlations.** For both bullies and victims similar associations were consistently evident. Both bullies and victims had low levels of attachment security within their relationships as well as higher levels of attachment insecurity. Moreover, both groups of individuals had lower levels of satisfaction within their friendships, as well as lower levels of commitment. Lastly, and most consistently, psychopathy held consistent associations among both bullies and victims of cyber-bullying.

The correlational analyses provide some support for the associations among cyberbullying, attachment, investment and personality variables. However, the number of variables included in the study do limit the interpretation of the significant findings – to address this limitation somewhat significant associations were only reported if there was a pattern of results across relationships. It may also be, however, that the simultaneous effect of the variables would result in a different pattern of results. To test the simultaneous effect of the attachment, investment and personality variables on cyber-bullying both ANCOVAs and logistic regressions were calculated.

**ANCOVA with 3 types of bullying.** Next, a 2x2 multivariate ANCOVA was completed with engaging in cyber-bullying (bully vs. non-bully) and experiencing cyber-bullying (victim vs. non-victim) as the between-subject factors. Additionally, impression management was used a covariate because it was found to be related to not only the cyber-behaviours scale, but also to attachment, investment and personality variables. ANCOVA analyses were completed for each type of bullying (i.e., traditional, personal attack, malicious) within the three different relationships (i.e., friend, acquaintance, stranger). Lastly, attachment relationships (mother, father, peer), friendship investment (satisfaction, commitment, quality of alternatives, investment), and personality

(narcissism, Machiavellianism, psychopathy) were entered in as dependent variables resulting in 15 different ANCOVAs overall. Because of the high number of analyses completed only result patterns were examined to have the risk of a type II error reduced (See Appendix P). Overall, results indicated that the impression management covariate entered significantly contributed to the ANCOVA in all but 4 at  $p < 0.05$ . Results can also be viewed on Tables 9-17.

***Friend relationships.*** When friend relationships were examined, a pattern emerged regarding the dark triad of personality. Specifically, a significant main effect was found for the bully group when traditional cyber-behaviours were examined ( $F(3,135) = 5.73, p < 0.01$ ). Specifically, participants who reported bullying a friend reported significantly higher on the psychopathy scales, but significantly lower on the Machiavellian scales. Additionally, a main effect was found for the victim group when personal attack cyber-behaviours were examined ( $F(3,135) = 2.76, p < 0.05$ ). Participants who reported being cyber-bullied also reported lower scores on the psychopathy scale. For malicious cyber-behaviours a main effect was found for both the victim group ( $F(3,135) = 5.06, p < 0.001$ ), and bully group ( $F(3,135) = 3.68, p < 0.01$ ), as well as a significant interaction ( $F(3,135) = 3.39, p < 0.05$ ). Specifically, cyber-bullies reported higher narcissism scores and cyber-victims reported lower narcissism and psychopathy scores. Participants who reported being both a bully and a victim reported higher psychopathy scores. Unfortunately, no patterns regarding attachment and interpersonal relationships emerged for friend relationships.

***Acquaintance relationships.*** Similarly to friend relationships, the most consistent pattern that emerged within acquaintance relationships was in relation to the dark triad of

personality. Specifically, for traditional cyber-behaviours a trend as found for main effect of the bully group ( $F(3,135) = 2.23, p < 0.10$ ) as well as for the interaction ( $F(3,135) = 2.44, p < 0.10$ ). Moreover, a significant main effect for victim group ( $F(3,135) = 3.93, p < 0.01$ ) as well as a significant interaction ( $F(3,135) = 3.56, p < 0.05$ ) were found when personal attack cyber-behaviours were looked at. Results indicated that victims reported significantly higher scores on the psychopathy scales. Participants who reported being both a victim and a bully reported significantly lower scores on the Machiavellian scales, but significantly higher on the psychopathy scales. Lastly, for malicious cyber-behaviours a significant interaction was found ( $F(3,135) = 2.8, p < 0.05$ ). Specifically, participants who reported being both a victim and a bully also reported significantly higher scores on the psychopathy scales. Again, attachment and interpersonal relationships did not emerge as consistent patterns within acquaintance relationships.

***Stranger relationships.*** Within relationships with strangers patterns emerged with attachment, interpersonal relationship, and the dark triad of personality. First, mother attachment revealed a significant main effect for victim group when traditional cyber-behaviours ( $F(4,134) = 2.86, p < 0.05$ ), personal attack cyber-behaviours ( $F(4,134) = 2.85, p < 0.05$ ), and malicious cyber-behaviours ( $F(4,134) = 3.38, p < 0.01$ ) were examined. For traditional cyber-behaviours, participants who reported they were victims also reported significantly lower levels of security and significantly higher scores of insecurity, specifically for dismissing attachment. For personal attack behaviours, this finding indicated that participants who reported being a victim also reported significantly lower levels of security within their relationship with their mother. Lastly, for malicious cyber-behaviours, results indicated that participants who reported being a victim of cyber-

bullying reported higher scores related to the preoccupied attachment pattern.

Importantly, a significant interaction was also found when malicious cyber-behaviours were examined ( $F(4,134) = 4.83, p < 0.001$ ). Overall, participants who reported being both a victim and a bully reported significantly higher scores on the preoccupied attachment scales, but significantly lower scores on the dismissing attachment scales.

In relation to father attachment, a few important trends emerged. A main effect was found for the bully group when personal attack behaviours were examined ( $F(4,134) = 2.19, p < 0.10$ ), as well as for victim group when malicious cyber-behaviours were examined ( $F(4,134) = 2.18, p < 0.10$ ). In relation to personal attack cyber-behaviours, participants who reported being a bully reported lower levels of insecurity, specifically regarding the fearful and dismissing attachment patterns. In contrast, participants who reported being a victim of malicious cyber-bullying reported higher levels of insecurity, specifically related to the preoccupied attachment pattern. Furthermore, an interaction for malicious cyber-behaviours was also a trend ( $F(4,134) = 2.08, p < 0.10$ ). Participants who reported being both a bully and a victim reported higher levels of insecurity, specifically regarding the preoccupied attachment pattern.

When relationship investment was looked at, a significant main effect was found for victim group for both traditional cyber-behaviours ( $F(4,134) = 3.01, p < 0.05$ ) and personal attack cyber-behaviours ( $F(4,134) = 2.71, p < 0.05$ ). For traditional cyber-behaviours participants who reported being a victim reported significantly lower scores of satisfaction and commitment within relationships. For personal attack cyber-behaviours, participants also reported significantly lower levels of satisfaction, investment, and commitment. Lastly, a main effect was also found for bully group when

personal attack behaviours were examined ( $F(4,134) = 3.31, p < 0.01$ ). Specifically, participants who reported being a bully also reported significantly lower levels of investment within interpersonal relationships.

Similarly, the dark triad of personality is also a consistent pattern regarding relationships with strangers. First, a significant main effect for victim group was found for traditional cyber-behaviours ( $F(3,135) = 9.96, p < 0.001$ ), personal attack cyber-behaviours ( $F(3,135) = 5.49, p < 0.001$ ), and malicious cyber-behaviours ( $F(3,135) = 8.36, p < 0.001$ ). In all three cases, participants who reported being a victim of cyber-bullying also reported significantly higher psychopathy scores. The main effect found for the personal attack cyber-behaviours also indicated that participants who indicated being a victim of cyber-bullying also reported significantly lower scores of Machiavellianism. For the bully group, a trend main effect was found for traditional cyber-behaviours ( $F(3,135) = 2.42, p < 0.10$ ). This trend indicated that participants who reported being a cyber-bully also reported higher scores of psychopathy. Lastly, significant interactions were found for personal attack cyber-behaviours ( $F(3,135) = 2.83, p < 0.05$ ) and malicious cyber-behaviours ( $F(3,135) = 5.82, p < 0.001$ ). For personal attack cyber-behaviours, participants who reported being both a victim and a bully scored significantly lower on the Machiavellian scale. For malicious cyber-behaviours, participants who reported being both a victim and a bully reported significantly higher on the psychopathy scale. Overall, relationships with strangers appear to be the most relevant in relation to cyber-bullying.

Table 9  
 2 Way ANCOVA Interactions for traditional cyber-bullying behaviours with impression management as a covariate with a friend

	NB/NV n=13 M (SD)	B/NV n=8 M (SD)	V/NB n=20 M (SD)	V/B n=101 M (SD)	F
<b><i>Friend - Traditional</i></b>					
SecM	4.41(0.34)	4.48(0.45)	5.11(0.28)	4.63(0.12)	0.06
FearM	1.86(0.41)	2.03(0.54)	2.71(0.34)	2.42(0.15)	0.25
PreM	3.25(0.27)	2.53(0.36)	2.93(0.22)	2.99(0.10)	4.69*
DisM	3.43(0.37)	3.21(0.49)	3.87(0.31)	3.82(0.14)	0.35
SecF	3.62(0.33)	4.15(0.44)	4.71(0.28)	4.25(0.12)	1.23
FearF	2.61(0.47)	2.84(0.62)	2.90(0.39)	2.76(0.17)	0.09
PreF	2.80(0.29)	3.38(0.39)	3.23(0.25)	3.00(0.11)	1.17
DisF	3.63(0.41)	3.80(0.54)	4.07(0.34)	3.98(0.15)	0.00
SecP	4.73(0.32)	4.48(0.42)	5.15(0.26)	4.66(0.12)	0.08
FearP	2.23(0.40)	2.69(0.53)	3.13(0.34)	3.06(0.15)	0.30
PreP	3.41(0.28)	3.31(0.37)	3.55(0.23)	3.83(0.10)	1.42
DisP	3.19(0.33)	3.56(0.43)	3.88(0.27)	3.63(0.12)	0.39
intSAT	5.30(0.48)	5.15(0.63)	5.74(0.40)	5.40(0.18)	0.10
intALT	3.29(0.43)	3.45(0.57)	4.24(0.36)	3.56(0.16)	0.51
intINV	5.00(0.47)	3.98(0.62)	4.57(0.39)	4.72(0.17)	3.18 <sup>T</sup>
intCOM	5.20(0.33)	4.64(0.43)	5.47(0.28)	5.40(0.12)	2.33
Narc	2.89(0.11)	2.91(0.15)	2.85(0.10)	2.97(0.04)	0.12
Mach	2.99(0.14)	3.07(0.19)	3.20(0.12)	3.28(0.05)	0.02
Psycho	1.87(0.17)	2.07(0.23)	2.02(0.14)	2.35(0.06)	0.00

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 10  
 2 Way ANCOVA Interactions for personal attack cyber-bullying behaviours with  
 impression management as a covariate with a friend

	NB/NV n=24 M (SD)	B/NV n=4 M (SD)	V/NB n=42 M (SD)	V/B n=72 M (SD)	F
<b><i>Friend – Personal Attack</i></b>					
SecM	4.56(0.25)	4.52(0.56)	4.92(0.19)	4.56(0.15)	0.02
FearM	2.26(0.31)	2.60(0.68)	2.18(0.23)	2.54(0.18)	0.08
PreM	2.91(0.20)	2.45(0.45)	3.07(0.15)	2.99(0.12)	0.42
DisM	3.71(0.28)	4.12(0.63)	3.72(0.21)	3.76(0.17)	1.32
SecF	4.10(0.25)	4.88(0.56)	4.40(0.19)	4.17(0.15)	1.45
FearF	3.01(0.35)	2.05(0.78)	2.53(0.27)	2.87(0.21)	1.54
PreF	2.92(0.22)	2.90(0.49)	3.27(0.17)	2.94(0.13)	0.03
DisF	4.14(0.30)	3.56(0.68)	3.89(0.23)	3.94(0.18)	0.37
SecP	4.62(0.24)	4.24(0.53)	4.87(0.18)	4.71(0.14)	1.10
FearP	2.92(0.30)	3.75(0.68)	3.06(0.23)	2.87(0.18)	2.29
PreP	3.25(0.20)	3.95(0.46)	3.57(0.16)	3.96(0.12)	0.05
DisP	3.76(0.25)	4.04(0.55)	3.70(0.19)	3.49(0.15)	1.17
intSAT	5.25(0.36)	5.27(0.80)	5.67(0.27)	5.34(0.21)	0.05
intALT	3.02(0.32)	2.92(0.72)	3.60(0.24)	3.88(0.19)	0.59
intINV	3.81(0.34)	5.24(0.77)	5.04(0.26)	4.74(0.20)	1.27
intCOM	4.94(0.24)	5.74(0.55)	5.61(0.19)	5.30(0.14)	0.48
Narc	2.87(0.09)	2.82(0.19)	2.96(0.07)	2.97(0.05)	0.51
Mach	3.25(0.11)	3.29(0.24)	3.35(0.08)	3.15(0.06)	0.53
Psycho	1.96(0.07)	2.04(0.28)	2.16(0.10)	2.41(0.08)	1.56

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 11  
 2 Way ANCOVA Interactions for malicious cyber-bullying behaviours with impression management as a covariate with a friend

	NB/NV n=56 M (SD)	B/NV n=9 M (SD)	V/NB n=35 M (SD)	V/B n=42 M (SD)	F
<b>Friend - Malicious</b>					
SecM	4.78(0.17)	4.66(0.40)	4.74(0.21)	4.44(0.20)	0.23
FearM	2.00(0.20)	2.50(0.40)	2.79(0.25)	2.54(0.23)	1.16
PreM	3.03(0.13)	2.95(0.32)	2.79(0.17)	3.09(0.16)	0.34
DisM	3.61(0.18)	3.82(0.44)	4.08(0.23)	3.65(0.21)	1.54
SecF	4.35(0.17)	4.20(0.40)	4.34(0.21)	4.05(0.19)	0.08
FearF	2.63(0.23)	2.68(0.56)	2.94(0.29)	2.82(0.27)	0.00
PreF	3.02(0.15)	2.95(0.35)	2.94(0.18)	3.10(0.17)	0.78
DisF	3.87(0.20)	4.00(0.47)	4.47(0.25)	3.58(0.23)	2.46
SecP	4.93(0.15)	4.72(0.37)	4.89(0.19)	4.31(0.18)	0.53
FearP	2.48(0.20)	3.23(0.47)	3.22(0.25)	3.35(0.23)	0.67
PreP	3.43(0.14)	4.30(0.32)	3.79(0.17)	3.91(0.16)	2.38
DisP	3.49(0.16)	3.32(0.39)	3.82(0.20)	3.69(0.19)	0.00
intSAT	5.88(0.23)	5.04(0.55)	5.36(0.29)	4.95(0.27)	0.57
intALT	3.38(0.21)	3.16(0.51)	4.08(0.27)	3.66(0.25)	0.04
intINV	4.73(0.23)	4.68(0.56)	4.60(0.29)	4.71(0.27)	0.41
intCOM	5.43(0.16)	5.39(0.38)	5.65(0.20)	5.97(0.19)	0.53
Narc	2.86(0.05)	3.34(0.13)	2.89(0.07)	3.01(0.06)	3.26 <sup>T</sup>
Mach	3.12(0.07)	3.53(0.17)	3.13(0.09)	3.29(0.08)	0.14
Psycho	1.98(0.08)	2.31(0.19)	2.19(0.10)	2.63(0.09)	3.72 <sup>T</sup>

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 12  
 2 Way ANCOVA Interactions for traditional cyber-bullying behaviours with impression management as a covariate with an acquaintance

	<b>NB/NV</b> n=40 M (SD)	<b>B/NV</b> n=11 M (SD)	<b>V/NB</b> n=28 M (SD)	<b>V/B</b> n=63 M (SD)	<b>F</b>
<b>Acquaintance - Traditional</b>					
SecM	4.68(0.20)	5.09(0.38)	4.83(0.23)	4.51(0.16)	1.22
FearM	2.16(0.24)	1.75(0.46)	2.41(0.28)	2.63(0.19)	1.05
PreM	2.96(0.16)	3.34(0.30)	3.01(0.19)	2.91(0.13)	0.95
DisM	3.57(0.22)	3.84(0.42)	3.65(0.26)	3.90(0.17)	0.04
SecF	4.19(0.20)	4.20(0.38)	4.40(0.23)	4.23(0.16)	0.02
FearF	2.52(0.27)	2.59(0.53)	3.18(0.33)	2.77(0.22)	0.62
PreF	2.95(0.17)	3.30(0.33)	3.03(0.20)	3.05(0.14)	0.39
DisF	3.77(0.24)	3.91(0.46)	4.23(0.28)	3.93(0.19)	0.45
SecP	4.69(0.19)	4.95(0.36)	4.64(0.22)	4.75(0.15)	0.00
FearP	2.70(0.24)	2.86(0.46)	3.35(0.28)	2.98(0.19)	1.05
PreP	3.50(0.16)	3.55(0.31)	3.95(0.19)	3.79(0.13)	0.24
DisP	3.57(0.19)	3.67(0.37)	3.68(0.23)	3.62(0.15)	0.01
intSAT	5.42(0.28)	5.49(0.54)	5.51(0.33)	5.37(0.22)	0.03
intALT	3.52(0.25)	3.00(0.49)	4.04(0.30)	3.59(0.20)	0.03
intINV	4.93(0.27)	4.44(0.53)	4.36(0.33)	4.73(0.22)	2.35
intCOM	5.33(0.19)	5.34(0.37)	5.50(0.23)	5.29(0.16)	0.10
Narc	2.94(0.07)	2.74(0.13)	3.05(0.08)	2.94(0.05)	0.17
Mach	3.14(0.08)	3.43(0.16)	3.30(0.10)	3.22(0.07)	3.64 <sup>T</sup>
Psycho	2.05(0.10)	2.00(0.19)	2.28(0.12)	2.39(0.08)	0.06

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 13  
 2 Way ANCOVA Interactions for personal attack cyber-bullying behaviours with  
 impression management as a covariate with an acquaintance

	NB/NV n=52 M (SD)	B/NV n=6 M (SD)	V/NB n=45 M (SD)	V/B n=39 M (SD)	F
<b>Acquaintance – Personal Attack</b>					
SecM	4.63(0.17)	5.70(0.51)	4.75(0.18)	4.46(0.20)	4.44*
FearM	2.57(0.21)	1.63(0.62)	2.10(0.22)	2.60(0.24)	3.70 <sup>†</sup>
PreM	2.99(0.14)	2.92(0.41)	2.93(0.15)	3.05(0.16)	0.25
DisM	3.85(0.19)	3.93(0.57)	3.59(0.20)	3.77(0.22)	0.02
SecF	4.17(0.17)	5.10(0.50)	4.50(0.18)	3.93(0.20)	5.46*
FearF	3.01(0.24)	2.17(0.71)	2.35(0.25)	3.02(0.28)	3.07 <sup>†</sup>
PreF	3.02(0.15)	2.88(0.45)	3.03(0.16)	3.09(0.17)	0.23
DisF	4.14(0.21)	4.17(0.62)	3.87(0.22)	3.74(0.24)	0.08
SecP	4.73(0.16)	5.53(0.48)	4.62(0.17)	4.71(0.19)	1.01
FearP	2.94(0.21)	2.63(0.62)	3.06(0.22)	2.94(0.25)	0.02
PreP	3.40(0.14)	4.21(0.42)	3.95(0.15)	3.80(0.16)	4.01*
DisP	3.77(0.17)	3.93(0.50)	3.64(0.18)	3.34(0.20)	0.56
intSAT	5.38(0.25)	5.63(0.73)	5.46(0.26)	5.39(0.29)	0.00
intALT	3.44(0.22)	3.47(0.67)	3.79(0.24)	3.68(0.26)	0.01
intINV	4.51(0.24)	3.77(0.71)	5.03(0.25)	4.67(0.28)	0.53
intCOM	5.31(0.17)	4.93(0.50)	5.58(0.18)	5.19(0.20)	0.12
Narc	2.87(0.06)	2.78(0.17)	3.04(0.06)	2.95(0.07)	0.00
Mach	3.20(0.07)	3.17(0.22)	3.36(0.08)	3.12(0.09)	0.97
Psycho	2.08(0.08)	1.63(0.25)	2.23(0.09)	2.59(0.10)	8.93**

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 14  
 2 Way ANCOVA Interactions for malicious cyber-bullying behaviours with impression management as a covariate with an acquaintance

	<b>NB/NV</b> n=78 M (SD)	<b>B/NV</b> n=5 M (SD)	<b>V/NB</b> n=33 M (SD)	<b>V/B</b> n=26 M (SD)	<b>F</b>
<b>Acquaintance - Malicious</b>					
SecM	4.62(0.14)	4.60(0.56)	5.00(0.21)	4.35(0.25)	2.08
FearM	2.40(0.17)	3.15(0.68)	2.00(0.26)	2.71(0.30)	0.19
PreM	2.91(0.11)	2.30(0.45)	3.01(0.17)	3.27(0.20)	1.90
DisM	3.88(0.15)	4.64(0.61)	3.36(0.23)	3.72(0.27)	0.05
SecF	4.28(0.14)	3.80(0.56)	4.38(0.21)	4.07(0.25)	0.03
FearF	2.82(0.20)	3.95(0.78)	2.57(0.30)	2.63(0.34)	0.35
PreF	2.96(0.12)	2.75(0.49)	3.10(0.19)	3.23(0.22)	0.62
DisF	4.09(0.17)	4.60(0.67)	3.73(0.25)	3.67(0.30)	0.08
SecP	4.78(0.13)	4.16(0.53)	4.92(0.20)	4.40(0.23)	0.02
FearP	2.95(0.17)	3.55(0.67)	3.73(0.25)	3.67(0.30)	1.16
PreP	3.58(0.12)	4.35(0.46)	3.96(0.18)	3.70(0.20)	2.34
DisP	3.67(0.14)	3.88(0.55)	3.34(0.21)	3.88(0.55)	0.16
intSAT	5.55(0.20)	4.76(0.78)	5.74(0.30)	4.71(0.34)	0.41
intALT	3.60(0.18)	5.24(0.72)	3.51(0.27)	3.51(0.32)	4.05*
intINV	4.57(0.20)	4.24(0.78)	5.13(0.30)	4.55(0.34)	0.08
intCOM	5.42(0.14)	5.40(0.54)	5.65(0.20)	4.70(0.24)	2.21
Narc	2.90(0.05)	3.16(0.19)	2.98(0.07)	3.00(0.08)	0.39
Mach	3.22(0.06)	3.47(0.24)	3.13(0.09)	3.34(0.11)	0.33
Psycho	2.08(0.07)	2.69(0.26)	2.10(0.10)	2.87(0.11)	6.06*

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 15  
 2 Way ANCOVA Interactions for traditional cyber-bullying behaviours with impression management as a covariate with a stranger

	NB/NV n=61 M (SD)	B/NV n=28 M (SD)	V/NB n=15 M (SD)	V/B n=38 M (SD)	F
<b><i>Stranger - Traditional</i></b>					
SecM	4.85(0.16)	4.77(0.24)	4.07(0.32)	4.51(0.20)	1.88
FearM	2.17(0.19)	2.50(0.29)	2.42(0.39)	2.65(0.25)	0.01
PreM	2.90(0.13)	2.88(0.19)	3.03(0.26)	3.18(0.16)	0.42
DisM	3.70(0.18)	3.68(0.26)	3.73(0.36)	3.90(0.23)	0.27
SecF	4.29(0.16)	4.53(0.24)	3.79(0.32)	4.16(0.20)	0.16
FearF	2.95(0.22)	2.56(0.33)	2.75(0.45)	2.61(0.29)	0.26
PreF	2.96(0.14)	3.08(0.21)	2.77(0.28)	3.23(0.18)	0.89
DisF	4.07(0.19)	3.86(0.29)	4.15(0.39)	3.73(0.25)	0.04
SecP	4.78(0.15)	4.53(0.22)	4.28(0.31)	4.73(0.19)	1.21
FearP	2.87(0.19)	2.86(0.29)	3.03(0.39)	3.18(0.25)	0.16
PreP	3.49(0.13)	3.66(0.19)	4.05(0.27)	4.01(0.17)	0.17
DisP	3.73(0.15)	3.66(0.23)	3.44(0.32)	3.47(0.20)	0.16
intSAT	5.65(0.22)	5.35(0.33)	5.91(0.45)	4.90(0.28)	1.09
intALT	3.66(0.20)	3.16(0.31)	3.76(0.42)	3.83(0.26)	1.08
intINV	4.66(0.22)	4.74(0.33)	5.20(0.45)	4.50(0.28)	1.43
intCOM	5.45(0.15)	5.43(0.23)	5.55(0.32)	5.03(0.20)	1.19
Narc	2.93(0.05)	2.83(0.08)	2.90(0.11)	3.07(0.07)	2.54
Mach	3.18(0.07)	3.33(0.10)	3.22(0.14)	3.23(0.09)	0.53
Psycho	2.11(0.08)	2.14(0.12)	2.17(0.16)	2.58(0.10)	3.45 <sup>T</sup>

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 16  
 2 Way ANCOVA Interactions for personal attack cyber-bullying behaviours with  
 impression management as a covariate with a stranger

	NB/NV n=76 M (SD)	B/NV n=9 M (SD)	V/NB n=32 M (SD)	V/B n=25 M (SD)	F
<b>Stranger – Personal Attack</b>					
SecM	4.77(0.14)	5.38(0.42)	4.35(0.22)	4.50(0.25)	1.03
FearM	2.24(0.17)	2.00(0.51)	2.70(0.27)	2.59(0.30)	0.23
PreM	3.00(0.11)	3.00(0.34)	2.80(0.18)	3.13(0.20)	0.68
DisM	3.76(0.16)	3.29(0.46)	3.92(0.25)	3.66(0.28)	0.41
SecF	4.32(0.14)	4.91(0.42)	4.09(0.22)	4.01(0.25)	2.40
FearF	2.85(0.20)	1.83(0.58)	2.82(0.31)	2.76(0.35)	2.81 <sup>T</sup>
PreF	3.02(0.12)	2.94(0.37)	3.01(0.20)	3.14(0.22)	0.33
DisF	4.04(0.17)	3.18(0.50)	4.11(0.27)	3.71(0.30)	1.09
SecP	4.80(0.13)	5.22(0.39)	4.56(0.21)	4.54(0.24)	0.99
FearP	2.79(0.17)	2.89(0.50)	3.38(0.27)	3.02(0.30)	0.14
PreP	3.59(0.12)	3.97(0.35)	3.77(0.18)	3.98(0.21)	0.02
DisP	3.69(0.14)	3.98(0.21)	3.79(0.22)	3.30(0.25)	0.01
intSAT	5.68(0.20)	5.82(0.58)	4.64(0.31)	4.53(0.35)	1.21
intALT	3.48(0.18)	4.16(0.54)	3.79(0.28)	3.65(0.33)	1.21
intINV	4.66(0.20)	5.58(0.58)	4.64(0.31)	4.53(0.35)	2.16
intCOM	5.41(0.14)	5.62(0.40)	5.66(0.21)	4.66(0.24)	6.55*
Narc	2.88(0.05)	3.06(0.14)	2.98(0.07)	3.04(0.08)	0.24
Mach	3.21(0.06)	3.61(0.17)	3.31(0.09)	3.04(0.12)	6.69**
Psycho	2.06(0.07)	2.17(0.20)	2.31(0.12)	2.77(0.12)	5.15*

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

Table 17  
 2 Way ANCOVA Interactions for malicious cyber-bullying behaviours with impression management as a covariate with a stranger

	NB/NV n=75 M (SD)	B/NV n=6 M (SD)	V/NB n=41 M (SD)	V/B n=20 M (SD)	F
<b>Stranger - Malicious</b>					
SecM	4.66(0.14)	5.30(0.52)	4.66(0.20)	4.51(0.28)	2.29
FearM	2.31(0.18)	2.04(0.63)	2.54(0.24)	2.45(0.34)	0.31
PreM	3.02(0.11)	2.13(0.40)	2.80(0.15)	3.45(0.22)	10.14**
DisM	3.69(0.16)	4.63(0.56)	3.95(0.21)	3.31(0.31)	4.24*
SecF	4.27(0.14)	4.47(0.52)	4.24(0.20)	4.13(0.28)	0.48
FearF	2.65(0.20)	1.96(0.71)	3.12(0.27)	2.73(0.39)	0.49
PreF	3.02(0.12)	2.29(0.44)	2.99(0.17)	3.41(0.24)	5.20*
DisF	3.92(0.17)	4.07(0.61)	4.23(0.23)	3.43(0.34)	1.01
SecP	4.89(0.13)	4.57(0.48)	4.60(0.18)	4.38(0.26)	0.01
FearP	2.73(0.17)	2.92(0.62)	3.29(0.23)	3.21(0.34)	0.00
PreP	3.56(0.12)	3.75(0.42)	3.88(0.16)	4.00(0.23)	0.01
DisP	3.56(0.14)	3.63(0.50)	3.79(0.19)	3.47(0.28)	0.27
intSAT	5.63(0.20)	5.83(0.71)	5.44(0.27)	4.44(0.39)	2.62
intALT	3.37(0.18)	3.90(0.65)	4.14(0.25)	3.38(0.36)	2.62
intINV	4.82(0.20)	5.43(0.71)	4.56(0.27)	4.23(0.39)	1.22
intCOM	5.36(0.14)	5.60(0.49)	5.60(0.19)	4.68(0.27)	4.31*
Narc	2.88(0.05)	2.85(0.17)	3.05(0.07)	3.01(0.09)	0.02
Mach	3.19(0.06)	3.61(0.22)	3.28(0.08)	3.17(0.12)	2.64
Psycho	2.08(0.07)	2.13(0.25)	2.27(0.09)	2.87(0.14)	10.88**

Note. NB=Not a bully; NV= not a victim; B= bully; V= victim; SecM=Security with mother; FearM= Fearful attachment with mother; PreM= Preoccupied attachment with mother; DisM= Dismissing attachment with mother. These are repeated for father and peer relationships. intSAT= satisfaction within friendships; intALT= quality of alternatives in other friendships; intINV= investment within friendships; intCOM= commitment within friendships; Narc= narcissism measure on the dark triad of personality scale; Mach=Machiavellianism measure on the dark triad of personality scale; Psycho= psychopathy measure on the dark triad of personality scale.

**Logistic Regression.** To analyze the simultaneous effect of the variables on cyberbullying, data were also analysed by logistic regression. Engaging in or experiencing each of the three types of cyber-behaviours (traditional, personal attack, malicious) were entered in as the dependent variable, with all relationship and interpersonal variables entered in as the predictors. This analysis was completed for both victims and bullies.

***Victims.***

*Traditional cyber-bullying.* A logistic regression analysis was conducted to predict experiencing traditional cyber-bullying behaviours using attachment, interdependence and the dark triad as predictors. A test of the full model against a constant only model was statistically significant in two of three relationships, which indicated that the predictors reliably distinguished between victims and non-victims for friends,  $\chi^2(19) = 29.79, p = 0.05$ , and strangers,  $\chi^2(19) = 45.56, p = 0.001$ , however was not reliable for acquaintances,  $\chi^2(19) = 26.66, p = 0.11$ . The Hosmer-Lemeshow goodness-of-fit test indicated an insignificant result for friends and strangers, which indicated that the model was a good fit for both analyses. Prediction success overall was 81% (94% for non-victims and 33% for victims) for friends and 95% (98% for non-victims and 62% for victims) for strangers. EXP(B) values indicated among friend and stranger relationships, when participants psychopathy scores increased, the odds ratio was 4 times as large for friends and 82 times as large for strangers, which indicated participants were 4 times more likely to be cyber-bullied by friends and 82 times more likely to be cyber-bullied by strangers using traditional strategies.

*Personal attack cyber-bullying.* A logistic regression analysis was conducted to predict experiencing personal attack cyber-bullying behaviours using attachment, interdependence and the dark triad as predictors. Similarly, a test of the full model against a constant only model was statistically significant in two of three relationships, which indicated that the predictors reliably distinguished between victims and non-victims for friends,  $\chi^2(19) = 38.09, p < 0.01$ , and strangers,  $\chi^2(19) = 37.90, p < 0.01$ , however was not reliable for acquaintances,  $\chi^2(19) = 29.63, p = 0.06$ . The Hosmer-Lemeshow goodness-of-fit test indicated an insignificant result for friends and strangers, which indicated that the model was a good fit for both analyses. Prediction success overall was 80% (52% for non-victims and 91% for victims) for friends and 77% (88% for non-victims and 56% for victims) for strangers. EXP(B) values indicated that when Machiavellianism increased within friend and stranger relationships, the odds of the participant experiencing cyber-bullying decreased. In contrast, EXP(B) values indicated among friend and stranger relationships, when participants psychopathy scores increased, the odds ratio was 7 times as large for friends and 4 times as large for strangers, which indicated participants were 7 times more likely to be cyber-bullied by friends and 4 times more likely to be cyber-bullied by strangers using personal attack methods.

*Malicious cyber-bullying.* A logistic regression analysis was conducted to predict experiencing personal attack cyber-bullying behaviours using attachment, interdependence and the dark triad as predictors. Again, a test of the full model against a constant only model was statistically significant in two of three relationships, which indicated that the predictors reliably distinguished between victims and non-victims for

friends,  $\chi^2 (19) = 38.49$ ,  $p < 0.01$ , and strangers,  $\chi^2 (19) = 33.84$ ,  $p < 0.05$ , however was not reliable for acquaintances,  $\chi^2 (19) = 21.57$ ,  $p = 0.31$ . The Hosmer-Lemeshow goodness-of-fit test indicated an insignificant result for friends and strangers, which indicated that the model was a good fit for both analyses. Prediction success overall was 75% (72% for non-victims and 77% for victims) for friends and 71% (79% for non-victims and 61% for victims) for strangers. EXP(B) values indicated that when participants psychopathy scores increased in friend and stranger relationships, the odds ratio was 5 times as large for friends and 3 times as large for strangers, which indicated participants were 5 times more likely to be cyber-bullied by friends and 3 times more likely to be cyber-bullied by strangers using malicious behaviours

*Overall.* Logistic regression analyses revealed that friend and stranger relationships were the most important in relation to experiencing cyber-bullying behaviours. More specifically, an increase in psychopathy increased the likelihood of being cyber-bullied using traditional, personal attack, and malicious cyber-bullying methods. Interestingly, Machiavellianism contributed to a decline in experiencing personal attack cyber-bullying behaviours.

### ***Bullies.***

*Traditional cyber-bullying.* A logistic regression analysis was conducted to predict engaging in traditional cyber-bullying behaviours using attachment, interdependence and the dark triad as predictors. A test of the full model against a constant only model was statistically significant in all three relationships, which indicated that the predictors reliably distinguished between bullies and non-bullies for friends,  $\chi^2 (19) = 43.07$ ,  $p < 0.01$ , acquaintances,  $\chi^2 (19) = 38.42$ ,  $p < 0.01$ , and strangers,  $\chi^2 (19) =$

35.06,  $p < 0.05$ . The Hosmer-Lemeshow goodness-of-fit test indicated an insignificant result for friends, acquaintances and strangers, which indicated that the model was a good fit for all three analyses. Prediction success overall was 91% (96% for non-bullies and 53% for bullies) for friends, 91% (99% for non-bullies and 25% for bullies) for acquaintances, and 85% (97% for non-bullies and 32% for bullies) for strangers. EXP(B) values indicated that when security within peer attachments increase within friend and stranger relationships, the odds ratio was 3 times as large and therefore participants were 3 more times likely to cyber-bully. EXP(B) values also indicated that when psychopathy scores increased with all three types of relationships (friend, acquaintance, stranger), the odds ratio was 14 times as large for friends, 12 times as large for acquaintances, and 4 times as large for strangers, which indicated it was 14, 12, and 4 times more likely to cyber-bully in all three relationships, respectively with traditional methods.

*Personal attack cyber-bullying.* A logistic regression analysis was conducted to predict engaging in personal attack cyber-bullying behaviours using attachment, interdependence and the dark triad as predictors. A test of the full model against a constant only model was statistically significant in all three relationships, which indicated that the predictors reliably distinguished between bullies and non-bullies for friends,  $\chi^2(19) = 39.92$ ,  $p < 0.01$ , acquaintances,  $\chi^2(19) = 39.40$ ,  $p < 0.01$ , and strangers,  $\chi^2(19) = 52.52$ ,  $p < 0.001$ . The Hosmer-Lemeshow goodness-of-fit test indicated an insignificant result for friends, acquaintances and strangers, which indicated that the model was a good fit for all three analyses. Prediction success overall was 76% (88% for non-bullies and 51% for bullies) for friends, 83% (95% for non-bullies and 44% for bullies) for acquaintances, and 87% (96% for non-bullies and 52% for bullies) for strangers. EXP(B)

values indicated that when Machiavellianism increased within friend and stranger relationships, the odds of the participant engaging in cyber-bullying decreased. In contrast, EXP(B) values indicated that when psychopathy scores increased with all three types of relationships (friend, acquaintance, stranger), the odds ratio was 6 times as large for friends, 8 times as large for acquaintances, and 14 times as large for strangers, which indicated participants were 6, 8, and 14 times more likely to cyber-bully in all three relationships with personal attack methods.

*Malicious cyber-bullying.* A logistic regression analysis was conducted to predict engaging in malicious cyber-bullying behaviours using attachment, interdependence and the dark triad as predictors. A test of the full model against a constant only model was statistically significant in all three relationships, which indicated that the predictors reliably distinguished between bullies and non-bullies for friends,  $\chi^2 (19) = 45.18, p = 0.001$ , acquaintances,  $\chi^2 (19) = 47.61, p < 0.001$ , and strangers,  $\chi^2 (19) = 30.28, p < 0.05$ . The Hosmer-Lemeshow goodness-of-fit test indicated an insignificant result for friends and strangers, which indicated that the model was a good fit, however a significant result was found for acquaintances, which indicated the model was not a good fit for this specific analysis. Prediction success overall was 79% (89% for non-bullies and 61% for bullies) for friends, 86% (95% for non-bullies and 55% for bullies) for acquaintances, and 87% (99% for non-bullies and 31% for bullies) for strangers. EXP(B) values indicated that when psychopathy scores increased with all three types of relationships (friend, acquaintance, stranger), the odds ratio was 3 times as large for friends, 15 times as large for acquaintances, and 8 times as large for strangers, which indicated participants

were 3, 15, and 8 times more likely to cyber-bully in all three relationships using malicious behaviours.

*Overall.* The logistic regression analyses revealed that all three types of relationships are important in relation to engaging in cyber-bullying behaviours. Additionally, peer attachment contributed to experiencing traditional cyber-bullying from friends, however, psychopathy contributed to engaging in cyber-bullying behaviours across the board, in all three types of relationships and all three cyber-bullying behaviours. Interestingly again, Machiavellianism contributed to a decline in personal attack cyber-bullying.

### **Discussion**

Cyber-bullying research is in need of many angles of innovation. This research study aimed to develop a comprehensive measurement of cyber-bullying, as well as understand the involvement of interpersonal relationships and personality when engaging in or experiencing traditional, personal attack or malicious cyber-bullying with adult participants. Study one allowed for a comprehensive measurement to be developed and fine-tuned to encapsulate the wide range of cyber-behaviours, in addition to reducing any redundancies by grouping together similar behaviours. This adjusted measure was then used in study two to examine the influence of interpersonal relationships and personality in relation to engaging in or experiencing cyber-bullying.

In study 2, the goal was to determine if interpersonal and personality characteristics influence whether individuals engage in or experience cyber-bullying behaviours. In relation to attachment, it was hypothesized that engaging in cyber-bullying behaviours would be associated with a dismissing attachment style considering that this

style was associated with a negative regard to others, coldness, and vindictiveness (Bartholomew & Horowitz, 1991). Results indicated that although engaging in cyber-bullying behaviours were not found to be related to a dismissing attachment, cyber-bullying was influenced by low levels of security and higher levels of insecurity, specifically a preoccupied and fearful attachment pattern. Similarly, Henderson, et al. (2005) found that if either person in a relationship is preoccupied, the likelihood of abuse increases. Overall, these results were most evident with malicious behaviours within stranger relationships. Interestingly, both of these attachment patterns involve higher levels of anxiety, which may explain why these findings are more pronounced with strangers, as there may be less anxiety associated with cyber-bullying strangers given the anonymity.

In contrast, it was hypothesized that a fearful or preoccupied attachment pattern would be related to more cyber-victimization compared to other attachment styles. Results indicated this hypothesis to be correct. Specifically, the fearful attachment pattern was evident for cyber-victims when personal attack and malicious cyber-behaviours were examined, whereas the preoccupied attachment pattern was relevant with all three types of cyber-behaviours. Again, these results were more pronounced within stranger relationships. These findings are consistent with previous research, which concluded that both fearful and preoccupied individuals are more likely to be in abusive relationships (Henderson et al., 1997). Furthermore, Bartholomew and Horowitz (1991) explained that individuals with a fearful attachment pattern are more exploitable compared to other attachment styles and may therefore be more vulnerable to cyber-bullies. Additionally, Bartholomew and Horowitz (1991) suggested that preoccupied individuals are overly

expressive, which may create a vulnerability for being cyber-bullied because of the attention they may draw to themselves.

Lastly, it was hypothesized that a secure attachment will not be associated with engaging in cyber-bullying behaviours, or experiencing cyber-victimization, since security is associated with healthy interpersonal relationships (Bartholomew, 1990). This hypothesis was not found to be correct. Interestingly, results indicated that higher levels of security in peer relationships increased the likelihood of individuals engaging in traditional cyber-bullying behaviours towards friends. This finding was not replicated for acquaintances and strangers. The important aspect to examine with this result would be the intentions. Secure individuals may feel more comfortable with their friendships to engage in traditional behaviours.

Another interpersonal perspective, interdependence, was expected to influence cyber-bullying behaviours. For individuals who report engaging in or experiencing cyber-bullying behaviours, it was expected that lower levels of friendship satisfaction, commitment, quality of alternatives and investment would be found. Results for victims indicated lower levels of satisfaction and commitment, with a higher quality of alternatives. For personal attack behaviours these findings were evident with only stranger relationships. With malicious behaviours, these findings were evident with both friend and stranger relationships. Results for bullies indicated lower levels of investment, satisfaction and commitment. With traditional and personal attack behaviours these findings were found within stranger relationships, whereas for malicious cyber-behaviours low interdependence was evident for friend, acquaintance and stranger relationships. Overall, these results were expected because a lower level of

interdependence is related to engaging in antisocial acts and conflict (Rusbult & Van Lange, 2003).

Overall, impression management was highly related to cyber-bullying. Therefore, impression management was used as a covariate for the analyses. The importance of impression management was expected given that a common tactic is intimidation, which can include threats and bullying (Bolino & Turnley, 2003), however it was not hypothesized as a variable to be accounted for.

Although not expected to be the most important influence on cyber-bullying, the dark triad of personality was hypothesized to influence these behaviours. Specifically, it was hypothesized that individuals who engage in cyber-bullying behaviours will score higher on all three personality measures within the dark triad including narcissism, Machiavellianism and psychopathy in comparison to individuals who do not engage in cyber-bullying behaviours. Interestingly, the dark triad of personality was important for both cyber-bullies as well as cyber-victims.

*Narcissism.* Consistently, patterns indicated higher levels of narcissism for both victims and bullies. Specifically, higher levels narcissism was evident for traditional and malicious cyber-behaviours for victims, however lower levels were seen with traditional cyber-behaviours for victims. Additionally, for bullies higher levels of narcissism were only found within friend relationships with malicious cyber-behaviours. Raskin and Terry (1988) illustrated that higher levels of narcissism is related to exploitation and aggression, which may explain why narcissism for bullies was evident with the most extreme of cyber-bullying behaviours.

*Machiavellianism.* Interestingly, lower levels of Machiavellianism were related to both experiencing or engaging in cyber-bullying behaviours overall. Specifically, analyses revealed for both victims and bullies, when Machiavellianism increased, the likelihood of engaging in or experiencing personal attack cyber-bullying behaviours decreased. This finding was not expected and inconsistent with previous research related to face-to-face bullying, which found a link between bullying behaviours and Machiavellianism (Baughman et al., 2012; Kerig & Stellwagen, 2010).

*Psychopathy.* Not surprisingly, psychopathy came out as the most important variable for both victims and bullies, regardless of relationship (friend, acquaintance, stranger) and cyber-bullying method (traditional, personal attack, malicious). Overall, findings were stronger the more severe the behaviour (personal attack, malicious) and the more distant the relationship (acquaintance, stranger), but they were still evident among all. The magnitude of the finding was not expected, however the relevance of psychopathy to cyber-bullying was expected. Cyber-bullying could be considered a callous behaviour, indicating a lack of empathy, which are two important characteristics of psychopathy as described by (Kerig & Stellwagen, 2010).

Recently research has highlighted a fourth construct to add to the dark triad of personality. Buckels, Jones and Paulhus (2013) proposed that an everyday form of sadism would complete the dark triad resulting in the dark tetrad. Everyday sadism has been demonstrated to be related to internet trolling and would be an interesting addition to future research (Buckels, Trapnell & Paulhus, 2014).

## **Implications**

Correlation, ANOVA, and logistic regression analyses emphasized similar results, which indicated the influence of a lack of security with attachment relationships, low levels of interdependence, and high levels of narcissism and psychopathy.

Overall, the results have many implications. The most prominent finding that stayed consistent throughout the study was the importance of the dark triad of personality, specifically, psychopathy. Psychopathy was consistently involved when examining both engaging in and experiencing traditional, personal attack and malicious cyber-bullying. Interestingly, Madan (2014) explains that cyber-bullying may be related to individuals having reduced levels of empathy through a computer versus face to face contact. Specifically, empathy, which is known to reduce aggression, is triggered by facial cues (Madan, 2014). During online interactions facial cues are not present, which leaves room for a lack of empathy. Given that lack of empathy is an important aspect of psychopathy, this may explain why psychopathy is so important in relation to cyber-bullying. Additionally, the importance of psychopathy may also be influenced by the growing competition among university peers. Paulhus and Williams (2002) explain that psychopathy was found to be associated with self-enhancement. Obtaining the minimum of an undergraduate degree has become the norm, thereby increasing competition among peers. If this is the case, more resources and education will need to be available to support victims and bullies as this is a phenomenon which will continue to increase. For example, clear online rules should be given for all online classes and discussions. Students should have a clear understanding as to what are acceptable online interactions, consequences for not following the online guidelines, as well as support through the

program department or health clinic. Awareness should also be spread throughout each residence, with support programs available to on campus and off campus students. Furthermore, in relation to therapy, Horowitz, Rosenberg and Bartholomew (1993) reported findings that suggest 90 percent of exploitable interpersonal problems display improvement throughout therapy. Therefore, in relation to cyber-bullying experiences, those who are cyber-victims may show a high improvement rate when dealing with cyber-victimization experiences, since these individuals may be more vulnerable. In contrast, Horowitz et al. (1993) found that minimal therapeutic progress is found with cold and vindictive interpersonal problems. Therefore, those who engage in cyber-bullying may have less improvement in therapy, since cyber-bullying is a cold and vindictive behaviour. Overall, an expansion of cyber-bullying research is necessary in order create a greater understanding of cyber-bully behaviours, as well as cyber-victimization experiences and the impact and implications that follow this growing phenomenon.

Secondly, results also indicated the influence of interpersonal relationships. These results were not always consistent, but a pattern was evident which illustrated that insecurity within relationships contributed to engaging in or experiencing cyber-bullying behaviours. These results may have been inconsistent given that most of the participants may still be in a transition phase between having their caregivers as a secure base, or their friends or a partner. Ainsworth (1985) and Bowlby (1951) both argue that a child relies on a secure base with their caregiver to explore the world. However, Waters and Cummings (2000) explain that this secure base is also important within adult relationships. Given that most of the sample was first or second year university students,

parent/caregiver attachments as well as peer attachments would both be important as a secure base. More consistent results may be found with a sample that has a dominant attachment figure, for example a younger sample that is always around their caregiver/parent, or an older sample that would be primarily with peers or a partner. Similarly, the same could be expected in relation to interdependence. Results indicated the importance of low interdependence in relation to engaging in or experiencing cyber-bullying. Alternatively, the results may have been more consistent with a sample that primarily relied on peers rather than both caregivers/parents and peers.

### **Limitations**

Throughout this research study a few limitations became apparent. The most prominent limitation with the results of this study was the potential for type II error. Multiple analyses were executed with multiple variables, which increased the possibility of a type II error occurring. However, as discussed in the results section, an attempt was made to minimize the potential for type II error by reporting patterns of results rather than every result found.

Secondly, most participants were undergraduate students, which limit the generalizability of the results to the greater adult population. Importantly, as individuals get older peer relationships become more important and individuals may start to be involved in their peer relationships more than their relationships with their caregiver(s) (Ainsworth, 1985). As suggested above, the results may have been more consistent with regards to the interpersonal relationship variables (attachment, interdependence) if the sample was older and primarily relied on peer relationships.

Specifically, given the transition period that most undergraduate students would be experiencing given that most would have transitioned out of their home and into a university atmosphere, interpersonal relationships may have not stabilized yet. With unstable relationships, this may yield inconsistent results in relation to attachment and interpersonal relationships. In addition, the lack of a community sample is also a limitation of this research study, as this limits the generalizability of the results to the general population by only analyzing university students.

### **Future Directions**

Cyber-bullying research would benefit from multiple additions to this research. To increase generalizability, this research should be expanded to include a community sample with a wide age range of participants. This will allow for the results to be compared determining if the results are consistent outside of a university sample. Furthermore, given that the interpersonal findings weren't always consistent, an older population may yield more consistent results with a population where relationships may be more stabilized. Therefore, a larger more inclusive sample would be able to further understand the involvement of interpersonal relationships and personality in relation to adults engaging in or experiencing cyber-bullying.

Furthermore, gender differences would be important to explore in future research as mixed findings have been established when examining gender differences in cyber-bullying research. Calvete et al. (2010) examined an adolescent sample, and found that males reported engaging in cyber-bullying more often than females. In contrast, Mishna et al. (2010) found that boys in grade six or seven, as well as boys in grade 10 or 11 were no more likely to engage in cyber-bullying behaviours compared to girls within the same

age groups. In relation to experiencing cyber-bullying behaviours, Mishna et al. (2010) found that within a grade 10 to grade 11 age group females were more likely to be cyber-bullied compared to males. Interestingly, no gender differences were found between younger students in relation to experiencing cyber-bullying (Mishna et al., 2010). Lastly, Beran and Li (2005) and Slonje and Smith (2008) found no significant gender differences for cyber-bullying or cyber-victimization. Therefore, previous research has not consistently been able to establish gender differences when it comes to engaging in cyber-bullying or experiencing cyber-bullying. Future research should examine gender further as it relates to cyber-bullying to determine consistencies.

Additionally, cyber-bullying research would also benefit from examining the emotional impact of experiencing or engaging in these cyber-bullying behaviours, for example using the Positive Affect Negative Affect Schedule (PANAS; Williams, Clark, & Tellegen, 1988). The emotional impact has been a highly publicized aspect of cyber-bullying and therefore should be an important piece of research moving forward. Cyber-bullying behaviours for both the victim and the perpetrator have resulting individual effects. Cyber-bullying has shown to have an impact on negative emotional feelings, fear of reporting cyber-bullying experiences, as well as suicidal behaviours. For example, 40 percent of cyber-victims reported feeling upset as a result of the cyber-bullying (Ortega, Elipe, Mora-Merchan, Calmaestra & Vega, 2009). Similarly, 24 percent of cyber-bully victims, who experience mobile and internet bullying, faced depressed emotions as a consequence (Ortega et al., 2009). Furthermore, with 548 self-identified cyber-victims under the age of 25, Price and Dalglish (2010) found that cyber-victims reported a decrease in self-confidence, self-esteem, friendships, and a noticeable decline in

academic grades. Additionally, current research regarding cyber-bullying and suicide has demonstrated that cyber-bullying has had an impact on both suicide ideation, as well as committing suicide (Hinduja & Patchin, 2010). As expected, results suggest that victims of cyber-bullies are found to have higher levels of suicide ideation compared to cyber-bullies (Hinduja & Patchin, 2010). Overall, Hinduja and Patchin (2010) found that cyber-victims are 1.9 times more likely to commit suicide compared to someone that has not experienced cyber-bullying. Since multiple cases of individuals committing suicide have arisen as a direct or indirect result of internet mistreatment, this extreme impact has now been termed as 'cyberbullicide' (Hinduja & Patchin, 2010). Therefore, assessing the impact of cyber-bullying is important, especially for cyber-victims, as this behaviour is found to be associated with suicide ideation, and suicide attempts. Therefore, cyber-bullying behaviours can create various negative emotional effects, which need to be investigated in order to understand and to create proper intervention techniques.

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### Appendix A

*Summary of demographic information for study 1 by sample*

	Unsupervised (N=308)	Supervised (N=88)
Age (mean, SD)	20.81 (5.20)	19.81 (3.40)
Gender		
Female	81.20	86.40
Male	18.80	13.60
Ethnicity		
Caucasian	83.70	80.70
Black	6.20	6.80
Asian	9.10	6.80
First Nations	1.00	0.00
Other	0.00	5.70
Education Completed		
High school Only	-	-
1 <sup>st</sup> Year University	51.90	82.60
2 <sup>nd</sup> Year University	33.70	12.80
3 <sup>rd</sup> Year University+	12.20	4.70
Some University	-	-
Completed Degree	0.60	0.00
Some Grad Studies	0.00	0.00

*Note.* “Other” includes those who have completed some graduate level education.

**Appendix B**

*Summary of mean, standard deviations, medians, and range values for number of friendships*

	X (SD)	Median (Range)
Trent University SONA Sample (N=308)		
Total friends	76.22 (119.66)	30.00 (2-1000)
Close friends	9.01 (11.64)	6.00 (1-100)
Non-close	38.46 (80.42)	20.00 (0-900)
Acquaintances	65.16 (366.36)	10.00 (0-5746)
Facebook	378.61 (241.25)	350.00 (0-1256)
Trent University In-lab Sample (N=88)		
Total friends	85.47 (156.17)	40.00 (6-1200)
Close friends	9.34 (6.99)	7.50 (1-45)
Non-close	36.73 (52.36)	20.00 (2-300)
Acquaintances	32.56 (69.00)	13.00 (0-435)
Facebook	426.25 (262.50)	400.00 (0-1088)

*Note.* Each category represents the number of friends indicated by each participant.

### Appendix C

*Summary of mean, standard deviations, medians, and range values for types of communication*

	X (SD)	Median (Range)
Trent University Online Sample (N=308)		
Trent e-mail	3.24 (1.90)	3.00 (0-6)
Hotmail	2.46 (2.06)	2.00 (0-6)
Yahoo	0.33 (1.16)	0.00 (0-6)
Gmail	0.55 (1.49)	0.00 (0-6)
Internet provider	0.39 (1.26)	0.00 (0-6)
Prev. school e-mail	0.22 (0.79)	0.00 (0-6)
Other email	0.26 (1.02)	0.00 (0-6)
Facebook	4.59 (2.06)	6.00 (0-6)
MySpace	0.08 (0.45)	0.00 (0-5)
Twitter	0.31 (1.12)	0.00 (0-6)
MSN	1.69 (2.11)	1.00 (0-6)
iChat	0.06 (0.33)	0.00 (0-3)
Texting	5.17 (1.81)	6.00 (0-6)
E-mail	3.83 (1.91)	4.00 (0-6)
Facebook chat	2.45 (2.24)	2.00 (0-6)
Skype	1.36 (1.74)	1.00 (0-6)
Chat rooms	0.09 (0.47)	0.00 (0-5)
Forums	0.56 (1.31)	0.00 (0-6)
Other	1.09 (1.96)	0.00 (0-6)

## Trent University In-lab Sample (N=88)

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Trent e-mail	3.98 (1.94)	4.00 (0-6)
Hotmail	2.49 (1.96)	2.00 (0-6)
Yahoo	0.25 (1.04)	0.00 (0-6)
Gmail	0.69 (1.61)	0.00 (0-6)
Internet provider	0.24 (1.04)	0.00 (0-6)
Prev. school e-mail	0.19 (0.84)	0.00 (0-6)
Other email	0.24 (0.99)	0.00 (0-6)
Facebook	4.60 (2.00)	6.00 (0-6)
MySpace	0.05 (0.34)	0.00 (0-3)
Twitter	0.40 (1.23)	0.00 (0-6)
MSN	1.18 (1.85)	0.00 (0-6)
iChat	0.02 (0.15)	0.00 (0-1)
Texting	5.58 (1.30)	6.00 (0-6)
E-mail	4.43 (1.73)	5.00 (1-6)
Facebook chat	2.44 (2.21)	2.00 (0-6)
Skype	1.60 (1.74)	1.00 (0-6)
Chat rooms	0.14 (0.75)	0.00 (0-6)
Forums	0.66 (1.56)	0.00 (0-6)
Other	1.18 (2.17)	0.00 (0-6)

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*Note.* Participants were asked to indicate the frequency per week they engaged in these forms of communication.

## Appendix D

### Trent University Student Consent Form

**Title:** Cyber-behaviours: A Comprehensive Measurement

**Student Investigator**

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**Faculty Advisor**

Elaine Scharfe, PhD., Department of Psychology, 748-1011 ext. 7354, LHS 137

**The purpose of this research:**

Cyber behaviours are expanding as the popularity of the internet, social networking, and instant messaging expands. Since there is a lack of research on cyber behaviours, this study aims to examine the vast range of cyber behaviours that people are engaging in.

**Procedures:**

If I choose to participate in this project, I will be asked to complete demographic questions and two surveys about my internet behaviours. I will be asked questions about my internet behaviours in relation to my friends, my acquaintances, and strangers. I understand that I may review these questionnaires before I decide to participate. I understand that it will take me approximately 45 minutes to complete the questionnaires.

**Discomfort, Risks, and Benefits:**

I understand that there is no expected harm from completing these questionnaires. I understand, however, that some of the questions may be viewed as personal and that I can refuse to answer any question(s) and may stop participating at any time. I also understand that some people report that the survey gets them to think about their behaviours more deeply than they might do otherwise and that may be a benefit or a risk depending on the nature of my behaviours. I understand that by signing this consent form and completing the questionnaires I will be awarded 1 credit hour towards my course grade.

**Confidentiality:**

I understand that my responses will be completely anonymous and that I can skip any question(s) that I am not comfortable answering. Anonymous questionnaire data will be kept at least five years after publication of the results. All of the questionnaires will be used for research and teaching purposes by Kristen Morrison and Dr. Elaine Scharfe.

**Other:**

Participation in this study is completely my choice. I can refuse to answer any question or quit participating at any time and there will be no negative consequences to me whatsoever. If I stop taking part in the study, the information I have given up to the time of my withdrawal will be kept for the study unless I ask that it be discarded. If I have any questions about this study, I can take this opportunity to ask questions now, so that my concerns are addressed to my satisfaction before I agree to participate, by emailing Kristen

Morrison, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca) or Dr. Elaine Scharfe ([escharfe@trentu.ca](mailto:escharfe@trentu.ca); 748-1011 ext. 7354). I agree to participate in this study and I understand that by proceeding I am giving informed consent. If I would like a summary of the results, I know that I must email Kristen Morrison, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca) or Dr. Elaine Scharfe, [escharfe@trentu.ca](mailto:escharfe@trentu.ca) to let them know that I would like to receive this summary when the study is completed (June 2011). I understand that if I would like clarification regarding any part of this research, I can contact Kristen Morrison or Dr. Elaine Scharfe and if I have any questions about the ethics approval or considerations, I may contact the Trent Research Ethics Board by either phoning Karen Mauro at 748 1011 x 7050 or e-mailing her at [kmauro@trentu.ca](mailto:kmauro@trentu.ca) . I understand that I should print a copy of my consent form—now before I continue—for my records.

I have read and given consent to completing the following questionnaire. To confirm that I agree to the consent form, I will **click here to proceed**.

If you do not wish to participate, do not continue and please close your browser.

## Appendix E

**Title:** Cyber-behaviours: A Comprehensive Measurement

### Student Investigator

Kristen Morrison, M.A. Student, Psychology, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca), OC 136

### Faculty Advisor

Elaine Scharfe, PhD., Department of Psychology, 748-1011 ext. 7354, LHS 137

### Participant Feedback

The purpose of this research study was to examine the range of cyber behaviours among University students using a comprehensive cyber behaviours measurement. With the expansion of the internet, instant messaging, and Social Networking, a variety of cyber behaviours have developed. Adults are of specific interest for this study, since this age group is most likely to use the internet, or instant messaging, for example as a part of their education or employment. There is a lack of research examining the vast amount of different cyber behaviours, so this measurement attempted to survey the types of cyber behaviours people are engaging in, as well as the frequency of these behaviours. More specifically, this study aimed to examine the different cyber behaviours that people engage in towards friends, acquaintances, as well as strangers. In contrast, this study also examined cyber behaviours that you have experienced, either from a friend, an acquaintance, or a stranger.

### Suggested Readings

- Calvete, E., Orue, I., Estevez, A., Villardon, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile. *Computers in Human Behaviour*, 26, 1128–1135.
- Erdur-Baker, O. (2010). Cyberbullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media & Society*, 12(1), 109-125.
- Slonje, R., & Smith, P.K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology*, 49, 147-154.
- Vandebosch, H., & Van Cleemput, K. (2008). Defining Cyberbullying: A qualitative research into the perceptions of youngsters. *Cyberpsychology & Behaviour*, 11(4), 499-503.
- Vandebosch, H., & Van Cleemput, K. (2009). Cyberbullying among youngsters: Profiles of bullies and victims. *New Media & Society*, 11(8), 1349-1371.

If you have any questions about this study, the readings, or would like a summary of the findings (available June 2011) please email Kristen Morrison, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca) or Dr. Elaine Scharfe ([escharfe@trentu.ca](mailto:escharfe@trentu.ca)). If you have any problems or concerns as a result of your participation in this study, please contact Trent Research Ethics Board by either phoning Karen Mauro at 748 1011 x 7050 or e-mailing her at [kmauro@trentu.ca](mailto:kmauro@trentu.ca) . Thank you for your participation.

If you have experienced any distress while completing the study, personal counselling is available to all students through the Counselling Centre. Many students seek support for specific concerns related to anxiety, depression, grief, and relationship challenges. Other students come to the Centre with less clearly defined difficulties such as low motivation, poor self-image/esteem, stress, loneliness and adjustment issues, all of which can seriously interfere with one's daily functioning and academic performance. Through discussion and goal-setting, counsellors can help students to more fully understand themselves, their concerns and to learn effective coping strategies. A few sessions of individual counselling are often sufficient to find a solution or at least to view the problem from a more manageable perspective. The opportunity to speak freely about one's concerns in a confidential and non-judgemental atmosphere can provide a source of comfort and relief. Relevant referrals within the Trent and Peterborough communities can be arranged as appropriate. Group therapy and workshops on selected topics are offered throughout the year. Limited psychiatric services are also provided. To book an appointment, please call (705) 748-1386 or drop by Blackburn Hall, Suite 113.

Counselling Centre  
Blackburn Hall, Suite 113

Telephone: (705) 748-1386 Fax: 705: 748-1137  
E-mail: [counselling@trentu.ca](mailto:counselling@trentu.ca)  
appointment.

Web: [www.trentu.ca/counselling](http://www.trentu.ca/counselling)  
Office Hours: Monday - Friday 9:00-  
12:00, 1:00-4:00  
Summer hours vary.  
Please phone ahead for an

## Appendix F

### Demographic Form

- 1) Age: \_\_\_\_\_
- 2) Gender: \_\_\_\_\_
- 3) Ethnicity (please fill in all that apply)
  - Caucasian
  - Black
  - Asian
  - First Nations
  - Other (please specify: \_\_\_\_\_)
- 4) What is your year of education at Trent University?
  - 1<sup>st</sup> year
  - 2<sup>nd</sup> year
  - 3<sup>rd</sup> year
  - 4<sup>th</sup> year
  - Graduate studies
  - Other (please specify: \_\_\_\_\_)
- 5) Marital status (choose the option that best describes your relationship status)
  - Single (not dating)
  - Single (dating casually)
  - Dating (but not living with romantic partner)
  - Living with romantic partner
  - Married or common law
  - Separated
  - Divorced
  - Widowed
  - Other  
(please specify: \_\_\_\_\_)
- 6) If you are currently in a romantic relationship, how long have you been in this relationship? \_\_\_\_\_
- 7) Parent's marital status
  - Never married
  - Married but separated/divorced when I was \_\_\_\_\_
  - Married but widowed when I was \_\_\_\_\_
  - Still married
  - Other (please specify: \_\_\_\_\_)
- 8) Are both of your parents still living?
  - Yes, both my parents are living
  - My mother is living and my father died when I was \_\_\_\_\_
  - My father is living and my mother died when I was \_\_\_\_\_
  - Both my parents are now deceased.
  - My mother died when I was \_\_\_\_\_ and my father died when I was \_\_\_\_\_.
- 9) With whom did you live with as a child?

- With my biological parent(s)
- With my adopted parent(s)
- With my biological mother and my step father
- With my biological father and my step mother
- With biological relatives (please specify who \_\_\_\_\_)

10) Where were you last year?

- In my last year of high school, living with parents or other family member(s) in \_\_\_\_\_
- In my last year of high school, living on my own or with roommates in \_\_\_\_\_
- In college or university, living with parents or other family member(s) in \_\_\_\_\_
- In college or university, living on my own or with roommates in \_\_\_\_\_
- Working, living with parents or other family member(s) \_\_\_\_\_
- Working, living on my own or with roommates in \_\_\_\_\_
- Traveling (please specify where \_\_\_\_\_)
- Other (please specify where \_\_\_\_\_)

11) Who do you live with now? Fill in all that apply.

- Live in residence on campus in a single.
- Live in residence on campus with roommates.
- Live with roommates off campus.
- Live alone off campus.
- Live with romantic partner off campus
- Live with parents
- Live with parents and commute (if you live 80 kms away from campus, more than 1 hour drive)
- With other biological relatives (please specify who \_\_\_\_\_)

12) How far away do your parents currently live from where you are attending university?

- I live with my parents
- My parents live in Peterborough
- My parents live less than 1 hour away.
- My parents live 1-2 hours away.
- My parents live 4-5 hours away.
- My parents live 5 or more hours away.
- Other (please specify: \_\_\_\_\_)

13) Do you have any biological siblings?

- No    Yes If yes, how many biological siblings do you have? \_\_\_\_\_ sisters and \_\_\_\_\_ brothers.

14) Do you have any step-siblings?

- No    Yes If yes, how many step-siblings do you have? \_\_\_\_\_ sisters and \_\_\_\_\_ brothers.

15) Are any of your siblings adopted?

No  Yes If yes, how many are adopted? \_\_\_\_\_ adopted sisters and \_\_\_\_\_ adopted brothers.

### Number of Friends

16) How many friends in total do you think you have?  
\_\_\_\_\_

17) That you consider to be 'close friends': \_\_\_\_\_

18) That you consider to be friends, but not 'close': \_\_\_\_\_

19) That you consider 'acquaintances': \_\_\_\_\_

20) How many Facebook friends do you have? \_\_\_\_\_

21) Of your total friends, how many have you made since coming to Trent?  
\_\_\_\_\_

22) Of your total friends, how many were from before you came to Trent?  
\_\_\_\_\_

23) Do you use e-mail? Please indicate a score based on the scale provided below.

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

- \_\_\_\_\_ A) Trent University E-mail  
 \_\_\_\_\_ B) Hotmail  
 \_\_\_\_\_ C) Yahoo  
 \_\_\_\_\_ D) Gmail  
 \_\_\_\_\_ E) Internet Service (e.g. Cogeco)  
 \_\_\_\_\_ F) Previous School E-mail  
 \_\_\_\_\_ G) Other: \_\_\_\_\_

24) How often to you use the following? Please indicate a score based on the scale below.

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or More Times

- \_\_\_\_\_ A) Facebook  
 \_\_\_\_\_ B) MySpace  
 \_\_\_\_\_ C) Twitter  
 \_\_\_\_\_ D) MSN  
 \_\_\_\_\_ E) iChat  
 \_\_\_\_\_ F) Cellphone - BBM/Text Message  
 \_\_\_\_\_ G) E-mail  
 \_\_\_\_\_ H) Facebook Chat  
 \_\_\_\_\_ I) MSN  
 \_\_\_\_\_ J) Skype  
 \_\_\_\_\_ K) Chat rooms  
 \_\_\_\_\_ L) Forums  
 \_\_\_\_\_ M) Other: \_\_\_\_\_

## Appendix G

### Cyber-Behaviours Scale

Please rate each item on the following scale indicating how many times you have experienced this behaviour *from a friend*?

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. A friend of mine has rejected my friend request on Facebook.
2. I know a friend has talked on instant messaging or Social Networking websites about something I have done.
3. I believe a friend has purposely excluded me from an online conversation, online group or event.
4. I have had a rumour that wasn't true made about me, which a friend spread over the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have had a friend say nice things about me on the internet or through instant messaging.
6. I know a friend has made negative remarks about me through instant messaging or Social Networking websites.
7. I have had a friend reveal personal information about me on the internet.
8. I know a friend has forwarded a private e-mail of mine to at least one of their friends without my permission.
9. I have had a friend talk about me publicly on the internet where multiple (more than one) people can see.
10. I have had a friend say negative things about me on the internet where multiple (more than one) other people could see.

If you use the Honesty Box Application on Facebook: If not, please skip questions 11 - 13

11. I believe I have had a friend make comments to my Honesty Box on Facebook.
12. I believe I have received negative remarks through my Honesty Box on Facebook from a friend.
13. I believe I have received threats through my Honesty Box on Facebook from a friend.
14. I have had a friend make comments on their Facebook status about me.
15. I have had a friend make fun of me through their Facebook status.
16. I have had a friend call me inappropriate names on the internet.
17. I have had a friend post a rude comment on my photo that I posted on the internet.
18. I have had a friend post a rude comment on my status that I posted on the internet.
19. I have had a friend post a photo of me on the internet because they thought I looked good in it.
20. I have had embarrassing photos posted of me on the internet with my permission by a friend.

21. I have had embarrassing photos posted of me on the internet without my permission by a friend.
22. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be using a fake account.
23. I have had a Facebook group or website made about me by a friend, with the purpose of making fun of me.
24. I have had a friend make a negative remark about my physical appearance (e.g. weight) on the internet or through instant messaging.
25. I have had a friend make a negative remark about my religion on the internet or through instant messaging.
26. I have had a friend make a negative remark about my sexual orientation on the internet or through instant messaging.
27. I have had a friend make a negative remark about my disability on the internet or through instant messaging.
28. I have had a sexist comment made about me on the internet by a friend.
29. I have had a racist remark made about me on the internet by a friend.
30. I have received unwelcome comments from a friend through the internet or other forms of instant messaging (cellphone).
31. I believe a friend has hacked into my computer.
32. I believe a friend has hacked into my Social Networking account.
33. I believe a friend has changed my status on my Social Networking account.
34. I believe a friend has purposely sent me a lot of spam with the intention of crashing my computer.
35. I believe a friend has sent my computer a virus on purpose.
36. I have received sexual comments from a friend through the internet or instant messaging.
37. I have received unwanted sexual comments from a friend through the internet or instant messaging.
38. I have had naked photos of me posted on the internet by a friend.
39. I have had a friend take a naked photo of me on their cellphone or camera and send it to other people.
40. I have had a friend post a sexual video of me on the internet.
41. I have had a sexual video of me recorded on a friend's cellphone or camera, and they sent this video to other people with my permission.
42. I have had a sexual video of me recorded on a friend's cellphone or camera, and they sent this video to other people without my permission.
43. I have received messages on the internet from a friend, who I purposely did not respond to.
44. I have given a friend a warning not to message me on the internet anymore.
45. I believe someone I consider to be a friend is stalking me online (Please indicate the number of people using the scale).
46. Someone I consider a friend has blackmailed me through the internet.
47. I have had a friend make a threat towards me through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have experienced this behaviour *from an acquaintance*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. Someone I consider an acquaintance has rejected my friend request on Facebook.
2. I know an acquaintance has talked on instant messaging or Social Networking websites about something I have done.
3. I believe someone I consider an acquaintance has purposely excluded me from an online conversation, online group, or event.
4. I have had a rumour that wasn't true made about me, which an acquaintance spread over the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have had an acquaintance say something nice about me on the internet or through instant messaging.
6. I know an acquaintance has made negative remarks about me through instant messaging or Social Networking websites.
7. I have had an acquaintance reveal personal information about me on the internet.
8. I know someone I consider an acquaintance has forwarded a private e-mail of mine to at least one of their friends without my permission.
9. I have had an acquaintance talk about me publicly on the internet where multiple (more than one) people can see.
10. I have had an acquaintance say negative things about me on the internet where multiple (more than one) people can see.

If you use the Honesty Box Application on Facebook: If not, please skip questions 11 – 13

11. I believe I have had an acquaintance make comments to my Honesty Box on Facebook.
12. I believe I have received negative remarks through my Honesty Box on Facebook from an acquaintance.
13. I believe I have received threats through my Honesty Box on Facebook from an acquaintance.
14. I have had an acquaintance make comments on their Facebook status about me.
15. I have had an acquaintance make fun of me through their Facebook status.
16. I have had an acquaintance call me inappropriate names on the internet.
17. I have had an acquaintance post a rude comment on my photo that I posted on the internet.
18. I have had an acquaintance post a rude comment on my status that I posted on the internet.
19. I have had an acquaintance post a photo of me on the internet because they thought I looked good in it.
20. I have had embarrassing photos posted of me on the internet with my permission by an acquaintance.

21. I have had embarrassing photos posted of me on the internet without my permission by an acquaintance.
22. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be using a fake account.
23. I have had a Facebook group or website made about me by an acquaintance, with the purpose of making fun of me.
24. I have had an acquaintance make a negative remark about my physical appearance (e.g. weight) on the internet or through instant messaging.
25. I have had an acquaintance make a negative remark about my religion on the internet or through instant messaging.
26. I have had an acquaintance make a negative remark about my sexual orientation on the internet or through instant messaging.
27. I have had an acquaintance make a negative remark about my disability on the internet or through instant messaging.
28. I have had a sexist comment made about me on the internet by an acquaintance.
29. I have had a racist remark made about me on the internet by an acquaintance.
30. I have received unwelcome comments from an acquaintance through the internet or other forms of instant messaging (cellphone).
31. I believe an acquaintance has hacked into my computer.
32. I believe an acquaintance has hacked into my Social Networking account.
33. I believe an acquaintance has changed my status on my Social Networking account.
34. I believe an acquaintance has purposely sent me a lot of spam with the intention of crashing my computer.
35. I believe an acquaintance has sent my computer a virus on purpose.
36. I have received sexual comments from an acquaintance through the internet or instant messaging.
37. I have received unwanted sexual comments from an acquaintance through the internet or instant messaging.
38. I have had naked photos of me posted on the internet by an acquaintance.
39. I have had an acquaintance take a naked photo of me on their cellphone or camera and send it to other people.
40. I have had an acquaintance post a sexual video of me on the internet.
41. I have had a sexual video of me recorded on an acquaintance's cellphone or camera, and they sent this video to other people with my permission.
42. I have had a sexual video of me recorded on an acquaintance's cellphone or camera, and they sent this video to other people without my permission.
43. I have received messages on the internet from an acquaintance, who I purposely did not respond to.
44. I have given an acquaintance a warning not to message me on the internet anymore.
45. I believe someone I consider to be an acquaintance is stalking me online (Please indicate the number of people using the scale).
46. Someone I consider an acquaintance has blackmailed me through the internet.
47. I have had an acquaintance make a threat towards me through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have experienced this behaviour *from a stranger*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. Someone I consider a stranger has rejected my friend request on Facebook.
2. I know a stranger has talked on instant messaging or Social Networking websites about something I have done.
3. I believe someone I consider a stranger has purposely excluded me from an online conversation, online group, or event.
4. I have had a rumour that wasn't true made about me, which someone I consider to be a stranger spread over the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have had a stranger say something nice about me on the internet or through instant messaging.
6. I know someone I consider a stranger has made negative remarks about me through instant messaging or Social Networking websites.
7. I have had someone I consider a stranger reveal personal information about me on the internet.
8. I know someone I consider a stranger has forwarded a private e-mail of mine to at least one of their friends without my permission.
9. I have had someone I consider a stranger talk about me publicly on the internet where multiple (more than one) people can see.
10. I have had someone I consider a stranger say negative things about me on the internet where multiple (more than one) people can see.

If you use the Honesty Box Application on Facebook: If not, please skip questions 11 - 13

11. I believe I have had a stranger make comments to my Honesty Box on Facebook.
12. I believe I have received negative remarks through my Honesty Box on Facebook from someone I consider to be a stranger.
13. I believe I have received threats through my Honesty Box on Facebook from someone I consider to be a stranger.
14. I have had someone I consider to be a stranger make comments on their Facebook status about me.
15. I have had someone I consider a stranger make fun of me through their Facebook status.
16. I have had a stranger call me inappropriate names on the internet.
17. I have had a stranger post a rude comment on my photo that I posted on the internet.
18. I have had someone I consider a stranger post a rude comment on my status that I posted on the internet.
19. I have had a stranger post a photo of me on the internet because they thought I looked good in it.

20. I have had embarrassing photos posted of me on the internet with my permission by someone I consider to be a stranger.
21. I have had embarrassing photos of me posted on the internet without my permission by someone I consider to be a stranger.
22. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be using a fake account.
23. I have had a Facebook group or website made about me by someone I consider to be a stranger, with the purpose of making fun of me.
24. I have had a stranger make a negative remark regarding my physical appearance (e.g. weight) on the internet or through instant messaging.
25. I have had a stranger make a negative remark regarding my religion on the internet through the internet or through instant messaging.
26. I have had a stranger make a negative remark regarding my sexual orientation on the internet or through instant messaging.
27. I have had a stranger make a negative remark regarding my disability on the internet or through instant messaging.
28. I have had a sexist comment made about me on the internet by someone I consider to be a stranger.
29. I have had a racist remark made about me on the internet by someone I consider to be a stranger.
30. I have received unwelcome comments from someone I consider to be a stranger through the internet or other forms of instant messaging (cellphone).
31. I believe a stranger has hacked into my computer.
32. I believe a stranger has hacked into my Social Networking account.
33. I believe a stranger has changed my status on my Social Networking account.
34. I believe a stranger has purposely sent me a lot of spam with the intention of crashing my computer.
35. I believe a stranger has sent me computer a virus on purpose.
36. I have received sexual comments from a stranger through the internet or instant messaging.
37. I have received unwanted sexual comments from a stranger through the internet or instant messaging.
38. I have had naked photos of me posted on the internet by someone I consider to be a stranger.
39. I have had someone I consider a stranger take a naked photo of me on their cellphone or camera and send it to other people.
40. I have had someone I consider to be a stranger post a sexual video of me on the internet.
41. I have had a sexual video of me recorded on a stranger's cellphone or camera, and they sent this video to other people with my permission.
42. I have had a sexual video of me recorded on a stranger's cellphone or camera, and they sent this video to other people without my permission.
43. I have received messages on the internet from a stranger, who I purposely did not respond to.
44. I have given someone I consider to be a stranger a warning not to message me on the internet anymore.

45. I believe someone I consider to be a friend is stalking me online (Please indicate the number of people using the scale).
46. Someone I consider to be a stranger has blackmailed me through the internet.
47. I have had a stranger make a threat towards me through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have engaged in this behaviour *towards a friend*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. I have rejected a friend request on Facebook from someone that I consider a friend.
2. I have talked on instant messaging or Social Networking websites about something that a friend has done.
3. I have purposely excluded someone from an online conversation, online group, or event that I consider a friend.
4. I have made up a rumour that wasn't true about a friend, and spread it to someone else using the internet, Social Networking or other forms of instant messaging (cellphone).
5. I have said nice things about a friend through instant messaging or the internet.
6. I have made negative remarks about a friend through instant messaging or Social Networking websites.
7. I have revealed personal information about a friend on the internet.
8. I have forwarded private e-mails from a friend to at least one other person without permission.
9. I have talked about a friend publicly on the internet where multiple (more than one) people can see.
10. I have made public negative remarks about a friend where multiple (more than one) other people could see.

If you use the Honesty Box Application on Facebook: If not, please skip questions 11 to 13

11. I have made comments to a friend's Honesty Box on Facebook.
12. I have made negative comments to a friend's Honesty Box on Facebook.
13. I have threatened a friend through their Honesty Box on Facebook.
14. I have made comments on my Facebook status about a friend.
15. I have made fun of a friend through my Facebook status.
16. I have called a friend an inappropriate name on the internet.
17. I have posted a rude comment on a friend's photo that they posted on the internet.
18. I have posted a rude comment on a friend's status that they posted on the internet.
19. I have posted a photo on the internet of a friend that I thought they looked good in.
20. I have posted embarrassing photos of a friend on the internet with permission.
21. I have posted embarrassing photos of a friend on the internet without permission.

22. I have created a fake Social Networking account in order to anonymously make negative comments towards a friend.
23. I have made a Facebook group or website about a friend with the purpose of making fun of them.
24. I have made a negative remark regarding a friend's physical appearance (e.g. weight) on the internet or through instant messaging.
25. I have made a negative remark regarding a friend's religion through the internet or instant messaging.
26. I have made a negative remark about a friend's sexual orientation through the internet or instant messaging.
27. I have made negative remarks about a friend's disability through the internet or instant messaging.
28. I have made a sexist remark about a friend on the internet.
29. I have made a racist remark about a friend on the internet.
30. I have made unwelcome comments to a friend through the internet or other forms of instant messaging.
31. I have hacked into a friend's computer.
32. I have hacked into a friend's Social Networking account.
33. I have changed a friend's status on their Social Networking account.
34. I have purposely sent a friend a lot of spam with the intention of crashing their computer.
35. I have purposely sent a virus to a friend's computer.
36. I have made sexual comments towards a friend through the internet or instant messaging.
37. I have made unwanted sexual comments towards a friend through the internet or instant messaging.
38. I have posted naked photos of a friend on the internet.
39. I have taken a naked photo of a friend on my cellphone or camera and sent it to other people.
40. I have posted a sexual video of a friend on the internet.
41. I have recorded a sexual video of a friend on my cellphone or camera and sent the video to other people with permission.
42. I have recorded a sexual video of a friend on my cellphone or camera and sent the video to other people without permission.
43. I have sent messages to a friend using the internet without any response back.
44. I have received a warning from someone I considered a friend not to message them on the internet anymore.
45. I have stalked a friend online (Please indicate how many people using the scale).
46. I have used the internet in order to blackmail a friend.
47. I have threatened a friend through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have engaged in this behaviour *towards an acquaintance*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. I have rejected a friend request on Facebook from someone that I consider an acquaintance.
2. I have talked on instant messaging or Social Networking websites about something that an acquaintance has done.
3. I have purposely excluded someone from an online conversation, online group, or event that I consider an acquaintance.
4. I have made up a rumour that wasn't true about an acquaintance, and spread it to someone else using the internet, Social Networking, or other forms of instant messaging (cellphone).
5. I have said nice things about an acquaintance through instant messaging or the internet.
6. I have made negative remarks about someone I consider an acquaintance through instant messaging or Social Networking websites.
7. I have revealed personal information about someone that I consider an acquaintance on the internet.
8. I have forwarded private e-mails from an acquaintance to at least one other person without permission.
9. I have talked about someone I consider an acquaintance on the internet, where multiple (more than one) people can see.
10. I have made public negative remarks about someone I consider an acquaintance, where multiple (more than one) other people could see.

If you use the Honesty Box Application on Facebook: If not, please skip questions 11 to 13

11. I have made comments to an acquaintance's Honesty Box on Facebook.
12. I have made negative comments to an acquaintance's Honesty Box on Facebook.
13. I have threatened an acquaintance through their Honesty Box on Facebook.
14. I have made comments on my Facebook status about someone I consider an acquaintance.
15. I have made fun of someone I consider an acquaintance through my Facebook status.
16. I have called an acquaintance an inappropriate name on the internet.
17. I have posted a rude comment on an acquaintance's photo that they posted on the internet.
18. I have posted a rude comment on an acquaintance's status that they posted on the internet.
19. I have posted a photo of an acquaintance on the internet that I thought they looked good in.
20. I have posted embarrassing photos of an acquaintance on the internet with permission.
21. I have posted embarrassing photos of an acquaintance on the internet without permission.
22. I have created a fake Social Networking account in order to anonymously make negative comments towards an acquaintance.

23. I have made a Facebook group or website about an acquaintance with the purpose of making fun of them.
24. I have made a negative remark regarding an acquaintances physical appearance (e.g. weight) on the internet or through instant messaging.
25. I have made a negative remark regarding an acquaintance's religion on the internet or through instant messaging.
26. I have made a negative remark about an acquaintance's sexual orientation on the internet or through instant messaging.
27. I have made a negative remark about an acquaintance's disability on the internet or through instant messaging.
28. I have made a sexist remark about an acquaintance on the internet.
29. I have made a racist remark about an acquaintance on the internet.
30. I have made unwelcome comments to an acquaintance through the internet or other forms of instant messaging.
31. I have hacked into an acquaintance's computer.
32. I have hacked into an acquaintance's Social Networking account.
33. I have changed an acquaintance's status on their Social Networking account.
34. I have purposely sent an acquaintance a lot of spam with the intention of crashing their computer.
35. I have purposely sent a virus to an acquaintance's computer.
36. I have made sexual comments towards an acquaintance through the internet or instant messaging.
37. I have made unwanted sexual comments towards an acquaintance through the internet or instant messaging.
38. I have posted naked photos of an acquaintance on the internet.
39. I have taken a naked photo of an acquaintance on my cellphone or camera and sent it to other people.
40. I have posted a sexual video of an acquaintance on the internet.
41. I have recorded a sexual video of an acquaintance on my cellphone or camera and sent the video to other people with permission.
42. I have recorded a sexual video of an acquaintance on my cellphone or camera and sent the video to other people without permission.
43. I have sent messages to an acquaintance using the internet without any response back.
44. I have received a warning from an acquaintance not to message them on the internet anymore.
45. I have stalked an acquaintance online (Please indicate how many people using the scale).
46. I have used the internet in order to blackmail an acquaintance.
47. I have threatened an acquaintance through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have engaged in this behaviour *towards a stranger*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. I have rejected a friend request on Facebook from someone that I consider a stranger.
2. I have talked on instant messaging or Social Networking websites about something that a stranger has done.
3. I have purposely excluded someone from an online conversation, online group, or event that I consider a stranger.
4. I have made up a rumour that wasn't true about someone I consider a stranger, and spread it to someone else using the internet, Social Networking, or other forms of instant messaging (cellphone).
5. I have said something nice about a stranger on the internet or through instant messaging.
6. I have made negative remarks about someone I consider a stranger through instant messaging or Social Networking websites.
7. I have revealed personal information about someone that I consider a stranger on the internet.
8. I have forwarded private e-mails from a stranger to at least one other person without permission.
9. I have talked about someone I consider a stranger on the internet, where multiple (more than one) people can see.
10. I have made public negative remarks about someone I consider a stranger, where multiple (more than one) other people could see.

If you use the Honesty Box Application on Facebook: If not, please skip questions 11 to 13

11. I have made comments to a stranger's Honesty Box on Facebook.
12. I have made negative comments to a stranger's Honesty Box on Facebook.
13. I have threatened a stranger through their Honesty Box on Facebook.
14. I have made comments on my Facebook status about someone I consider a stranger.
15. I have made fun of someone I consider a stranger through my Facebook status.
16. I have called a stranger an inappropriate name on the internet.
17. I have posted a rude comment on a stranger's photo that they posted on the internet.
18. I have posted a rude comment on a stranger's status that they posted on the internet.
19. I have posted a photo of a stranger on the internet that I thought they looked good in.
20. I have posted embarrassing photos of a stranger on the internet with permission.
21. I have posted embarrassing photos of a stranger on the internet without permission.
22. I have created a fake Social Networking account in order to anonymously make negative comments towards a stranger.
23. I have made a Facebook group or website about a stranger with the purpose of making fun of them.
24. I have made a negative remark regarding a stranger's physical appearance (e.g. weight) on the internet or through instant messaging.

25. I have made negative remarks regarding a stranger's religion on the internet or through instant messaging.
26. I have made negative remarks regarding a stranger's sexual orientation on the internet or through instant messaging.
27. I have made negative remarks regarding a stranger's disability on the internet or through instant messaging.
28. I have made a sexist remark about a stranger on the internet.
29. I have made a racist remark about a stranger on the internet.
30. I have made unwelcome comments to a stranger through the internet or other forms of instant messaging.
31. I have hacked into a stranger's computer.
32. I have hacked into a stranger's Social Networking account.
33. I have changed a stranger's status on their Social Networking account.
34. I have purposely sent a stranger a lot of spam with the intention of crashing their computer.
35. I have purposely sent a virus to a stranger's computer.
36. I have made sexual comments towards a stranger through the internet or instant messaging.
37. I have made unwanted sexual comments towards a stranger through the internet or instant messaging.
38. I have posted naked photos of a stranger on the internet.
39. I have taken a naked photo of a stranger on my cellphone or camera and sent it to other people.
40. I have posted a sexual video of a stranger on the internet.
41. I have recorded a sexual video of a stranger on my cellphone or camera and sent the video to other people with permission.
42. I have recorded a sexual video of a stranger on my cellphone or camera and sent the video to other people without permission.
43. I have sent messages to a stranger using the internet without any response back.
44. I have received a warning from a stranger not to message them on the internet anymore.
45. I have stalked a stranger online (Please indicate how many people using the scale).
46. I have used the internet in order to blackmail a stranger.
47. I have threatened a stranger through the internet or other forms of instant messaging (cellphone).

## Appendix H

### Trent University Student Consent Form

**Title:** Positive and Negative Cyber-behaviours: An Interpersonal Perspective

#### Student Investigator

Kristen Morrison, M.A. Student, Psychology, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca), OC 136

#### Faculty Advisor

Elaine Scharfe, PhD., Department of Psychology, [escharfe@trentu.ca](mailto:escharfe@trentu.ca) 748-1011 ext. 7354, LHS C130

#### The purpose of this research:

Cyber behaviours are expanding as the popularity of the internet, social networking, and instant messaging increases in popularity. Since there is a lack of research on cyber behaviours, this study aims to examine the vast range of cyber behaviours that people are engaging in, as well as understand how your relationship experiences with your family and friends, as well as your personality traits may influence your cyber-behaviours.

#### Procedures:

If I choose to participate in this project, I will be asked to complete demographic questions as well as surveys about my internet behaviours with friends, acquaintances, and strangers, as well as some questions about my close relationships and my personality. I understand that I may review these questionnaires before I decide to participate. I understand that it will take me approximately 1 hour to complete the questionnaires.

#### Discomfort, Risks, and Benefits:

I understand that there is no expected harm from completing these questionnaires. I understand, however, that some of the questions may be viewed as personal and that I can refuse to answer any question(s) and may stop participating at any time. I also understand that some people report that the survey gets them to think about their behaviours and relationships more deeply than they might do otherwise and that may be a benefit or a risk depending on the nature of my behaviours and relationships. I understand that by signing this consent form and completing the questionnaires I will be awarded 1 credit hour towards my course grade.

#### Confidentiality:

I understand that my responses will be completely anonymous (i.e., without identifiers) and that I can skip any question(s) that I am not comfortable answering. Anonymous questionnaire data will be kept at least five years after publication of the results. Kristen Morrison and Dr. Elaine Scharfe will have access to the data and all of the questionnaires will be used for research and teaching purposes by Kristen Morrison and Dr. Elaine Scharfe. Data will be published in Kristen Morrison's MA thesis and

Kristen Morrison and Dr. Elaine Scharfe plan to publish these data widely (e.g., in journals, chapters, books or other venues).

I understand that I am not giving any identifying information in these surveys and that the data will be stored in a spreadsheet format and that there will be no way to identify that I completed the surveys from data in the spreadsheets.

**Other:**

Participation in this study is completely my choice. I can refuse to answer any question or quit participating at any time and there will be no negative consequences to me whatsoever. If I stop taking part in the study, the information I have given up to the time of my withdrawal will be kept for the study unless I ask that it be discarded. If I have any questions about this study, I can take this opportunity to ask questions now, so that my concerns are addressed to my satisfaction before I agree to participate, by emailing Kristen Morrison, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca) or Dr. Elaine Scharfe ([escharfe@trentu.ca](mailto:escharfe@trentu.ca); 748-1011 ext. 7354). I agree to participate in this study and I understand that by proceeding I am giving informed consent. If I would like a summary of the results, I know that I must email Kristen Morrison, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca) or Dr. Elaine Scharfe, [escharfe@trentu.ca](mailto:escharfe@trentu.ca) to let them know that I would like to receive this summary when the study is completed (summer 2012). I understand that if I would like clarification regarding any part of this research, I can contact Kristen Morrison or Dr. Elaine Scharfe and if I have any questions about the ethics approval or considerations, I may contact the Trent Research Ethics Board by either phoning Karen Mauro at 748 1011 x 7050 or e-mailing her at [kmauro@trentu.ca](mailto:kmauro@trentu.ca) . I understand that I should print a copy of my consent form—now before I continue—for my records.

I have read and given consent to completing the following questionnaire. To confirm that I agree to the consent form, I will **click here to proceed**.

If you do not wish to participate, **click here** and you will not complete the survey. Please close your browser.

## Appendix I

### Trent University Debrief Form

**Title:** Positive and Negative Cyber-behaviours: An Interpersonal Perspective

#### Student Investigator

Kristen Morrison, M.A. Student, Psychology, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca), OC 136

#### Faculty Advisor

Elaine Scharfe, PhD., Department of Psychology, 748-1011 ext. 7354, LHS C130

### Participant Feedback

The purpose of this research study is to explore the association between several interpersonal theories and young adults' behaviours on the internet and other technological communication. With the expansion of the internet, instant messaging, and Social Networking, there are a number of opportunities to interact with people on-line and possibly an increase in the number of opportunities to engage in bullying behaviour. Interestingly, although young adults are most likely to use the internet, or instant messaging, as a part of their education or employment there is very little research examining cyber-behaviours in this age range. In this research study, we were also interested in whether relationship characteristics and personality traits were associated with people who engage in cyber-bullying behaviours or are targeted as victims of cyber-bullying. Although relationship research has not been specifically linked with cyber-bullying, research has revealed a link between relationship characteristics and conflict and bullying. For example, we are interested in whether your tendency to approach or avoid others when under stress (see "attachment" in your textbook) is associated with your cyber-behaviours. Furthermore, research has also revealed that personality characteristics, specifically those involved with narcissism, psychopathy and Machiavellianism, are associated with aggression and bullying but to date no one has explored the association with cyber-bullying. Of course, we expect that participants who do not endorse these personality characteristics to report low levels of cyber-bullying behaviours.

### Suggested Readings

- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7, 147-178. doi: 10.1177/0265407590072001
- Bartholomew, K., & Horowitz, L. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61, 226-244. doi: 10.1037/0022-3514.61.2.226
- Calvete, E., Orue, I., Estevez, A., Villardon, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile. *Computers in Human Behaviour*, 26, 1128-1135.
- Erdur-Baker, O. (2010). Cyberbullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media & Society*, 12(1), 109-125.

- Kerig, P. K., & Stellwagen, K. K. (2010). Roles of callous-unemotional traits, narcissism, and Machiavellianism in childhood aggression. *Journal of Psychopathology and Behavioural Assessment*, 32, 343-352.
- Slonje, R., & Smith, P.K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology*, 49, 147-154.
- Vandebosch, H., & Van Cleemput, K. (2009). Cyberbullying among youngsters: Profiles of bullies and victims. *New Media & Society*, 11(8), 1349-1371.
- Zapf, D. & Einarsen, S. (2003). Individual antecedents of bullying. In S. Einarsen, H. Hoel, D. Zapf and C. I. Cooper (Eds.), *Bullying and emotional abuse in the workplace: International perspectives in research and practice* (pp. 165–184). London: Taylor & Francis.

If you have any questions about this study, the readings, or would like a summary of the findings (available June 2011) please email Kristen Morrison, [kmorrison2@trentu.ca](mailto:kmorrison2@trentu.ca) or Dr. Elaine Scharfe ([escharfe@trentu.ca](mailto:escharfe@trentu.ca)). If you have any problems or concerns as a result of your participation in this study, please contact Trent Research Ethics Board by either phoning Karen Mauro at 748 1011 x 7050 or e-mailing her at [kmauro@trentu.ca](mailto:kmauro@trentu.ca). Thank you for your participation.

If you have experienced any distress while completing the study, personal counselling is available to all students through the Counselling Centre. Many students seek support for specific concerns related to anxiety, depression, grief, and relationship challenges. Other students come to the Centre with less clearly defined difficulties such as low motivation, poor self-image/esteem, stress, loneliness and adjustment issues, all of which can seriously interfere with one's daily functioning and academic performance. Through discussion and goal-setting, counsellors can help students to more fully understand themselves, their concerns and to learn effective coping strategies. A few sessions of individual counselling are often sufficient to find a solution or at least to view the problem from a more manageable perspective. The opportunity to speak freely about one's concerns in a confidential and non-judgemental atmosphere can provide a source of comfort and relief. Relevant referrals within the Trent and Peterborough communities can be arranged as appropriate. Group therapy and workshops on selected topics are offered throughout the year. Limited psychiatric services are also provided. To book an appointment, please call (705) 748-1386 or drop by Blackburn Hall, Suite 113.

Counselling Centre  
[www.trentu.ca/counselling](http://www.trentu.ca/counselling)  
 Blackburn Hall, Suite 113

Telephone: (705) 748-1386 Fax: 705: 748-1137  
 E-mail: [counselling@trentu.ca](mailto:counselling@trentu.ca)

Web:

Office Hours: Monday -  
 Friday 9:00-12:00, 1:00-4:00  
 Summer hours vary.  
 Please phone ahead for an  
 appointment.

## Appendix J

### Demographic Form

- 1) Age: \_\_\_\_\_
- 2) Gender: \_\_\_\_\_
- 3) Ethnicity (please fill in all that apply)
  - Caucasian
  - Black
  - Asian
  - First Nations
  - Other (please specify:\_\_\_\_\_)
- 4) What is your year of education at Trent University?
  - 1<sup>st</sup> year
  - 2<sup>nd</sup> year
  - 3<sup>rd</sup> year
  - 4<sup>th</sup> year
  - Graduate studies
  - Other (please specify:\_\_\_\_\_)
- 5) Marital status (choose the option that best describes your relationship status)
  - Single (not dating)
  - Single (dating casually)
  - Dating (but not living with romantic partner)
  - Living with romantic partner
  - Married or common law
  - Separated
  - Divorced
  - Widowed
  - Other  
(please specify:\_\_\_\_\_)
- 6) If you are currently in a romantic relationship, how long have you been in this relationship? \_\_\_\_\_
- 7) Parent's marital status
  - Never married
  - Married but separated/divorced when I was \_\_\_\_\_
  - Married but widowed when I was \_\_\_\_\_
  - Still married
  - Other (please specify:\_\_\_\_\_)
- 8) Are both of your parents still living?
  - Yes, both my parents are living
  - My mother is living and my father died when I was \_\_\_\_\_
  - My father is living and my mother died when I was \_\_\_\_\_
  - Both my parents are now deceased.  
My mother died when I was \_\_\_\_\_ and my father died when I was \_\_\_\_\_.
- 9) With whom did you live with as a child?

- With my biological parent(s)
- With my adopted parent(s)
- With my biological mother and my step father
- With my biological father and my step mother
- With biological relatives (please specify who \_\_\_\_\_)

10) Where were you last year?

In my last year of high school, living with parents or other family member(s) in \_\_\_\_\_

In my last year of high school, living on my own or with roommates in \_\_\_\_\_

In college or university, living with parents or other family member(s) in \_\_\_\_\_

In college or university, living on my own or with roommates in \_\_\_\_\_

Working, living with parents or other family member(s) \_\_\_\_\_

Working, living on my own or with roommates in \_\_\_\_\_

Traveling (please specify where \_\_\_\_\_)

Other (please specify where \_\_\_\_\_)

11) Who do you live with now? Fill in all that apply.

- Live in residence on campus in a single.
- Live in residence on campus with roommates.
- Live with roommates off campus.
- Live alone off campus.
- Live with romantic partner off campus
- Live with parents
- Live with parents and commute (if you live 80 kms away from campus, more than 1 hour drive)
- With other biological relatives (please specify who \_\_\_\_\_)

12) How far away do your parents currently live from where you are attending university?

- I live with my parents
- My parents live in Peterborough
- My parents live less than 1 hour away.
- My parents live 1-2 hours away.
- My parents live 4-5 hours away.
- My parents live 5 or more hours away.
- Other (please specify: \_\_\_\_\_)

13) Do you have any biological siblings?

No  Yes If yes, how many biological siblings do you have? \_\_\_\_\_ sisters and \_\_\_\_\_ brothers.

14) Do you have any step-siblings?

No  Yes If yes, how many step-siblings do you have? \_\_\_\_\_ sisters and \_\_\_\_\_ brothers.

15) Are any of your siblings adopted?

No  Yes If yes, how many are adopted? \_\_\_\_\_ adopted sisters and \_\_\_\_\_ adopted brothers.

#### Number of Friends

16) How many friends in total do you think you have? \_\_\_\_\_

17) That you consider to be 'close friends': \_\_\_\_\_

18) That you consider to be friends, but not 'close': \_\_\_\_\_

19) That you consider 'acquaintances': \_\_\_\_\_

20) How many Facebook friends do you have? \_\_\_\_\_

21) Of your total friends, how many have you made since coming to Trent? \_\_\_\_\_

22) Of your total friends, how many were from before you came to Trent? \_\_\_\_\_

23) Do you use e-mail? Please indicate a score based on the scale provided below.

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or More Times

\_\_\_\_\_ A) Trent University E-mail

\_\_\_\_\_ B) Hotmail

\_\_\_\_\_ C) Yahoo

\_\_\_\_\_ D) Gmail

\_\_\_\_\_ E) Internet Service (e.g. Cogeco)

\_\_\_\_\_ F) Previous School E-mail

\_\_\_\_\_ G) Other: \_\_\_\_\_

24) How often to you use the following? Please indicate a score based on the scale below.

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or More Times

\_\_\_\_\_ A) Facebook

\_\_\_\_\_ B) MySpace

\_\_\_\_\_ C) Twitter

\_\_\_\_\_ D) MSN

\_\_\_\_\_ E) iChat

\_\_\_\_\_ F) Cellphone - BBM/Text Message

\_\_\_\_\_ G) E-mail

\_\_\_\_\_ H) Facebook Chat

\_\_\_\_\_ I) MSN

\_\_\_\_\_ J) Skype

\_\_\_\_\_ K) Chat rooms

\_\_\_\_\_ L) Forums

\_\_\_\_\_ M) Honesty Box on Facebook

\_\_\_\_\_ N) Other: \_\_\_\_\_

## Appendix K

### Relationship Scales Questionnaire

Please read each of the following statements and rate the extent to which it describes your feelings about your **relationship with your mother** on the 7-point scale. Please think about your relationship with your mother past and present, and respond in terms of how you generally feel in this relationship.

1	2	3	4	5	6	7
Not at all			somewhat			very much
Like me			like me			like me

1. I find it difficult to depend on my mother.
2. It is very important to me to feel independent from my mother.
3. I find it easy to get emotionally close to my mother.
4. I worry that I will be hurt if I allow myself to become too close to my mother.
5. I am comfortable without a close emotional relationship with my mother.
6. I want to be completely emotionally intimate with my mother.
7. I worry about being alone.
8. I am comfortable depending on my mother.
9. I find it difficult to trust my mother completely.
10. I am comfortable having my mother depend on me.
11. I worry that my mother does not value me as much as I value her.
12. It is very important to me to feel self-sufficient from my mother.
13. I prefer not to have my mother depend on me.
14. I am somewhat uncomfortable being close to my mother.
15. I find that my mother are reluctant to get as close as I would like.
16. I prefer not to depend on my mother.
17. I worry about having my mother not accept me.

Please read each of the following statements and rate the extent to which it describes your feelings about your **relationship with your father** on the 7-point scale. Please think about your relationship with your father past and present, and respond in terms of how you generally feel in this relationship.

1	2	3	4	5	6	7
Not at all			somewhat			very much
Like me			like me			like me

1. I find it difficult to depend on my father.
2. It is very important to me to feel independent from my father.
3. I find it easy to get emotionally close to my father.
4. I worry that I will be hurt if I allow myself to become too close to my father.
5. I am comfortable without a close emotional relationship with my father.
6. I want to be completely emotionally intimate with my father.
7. I worry about being alone.

8. I am comfortable depending on my father.
9. I find it difficult to trust my father completely.
10. I am comfortable having my father depend on me.
11. I worry that my father does not value me as much as I value them.
12. It is very important to me to feel self-sufficient from my father.
13. I prefer not to have my father depend on me.
14. I am somewhat uncomfortable being close to my father.
15. I find that my father is reluctant to get as close as I would like.
16. I prefer not to depend on my father.
17. I worry about having my father not accept me.

Please read each of the following statements and rate the extent to which it describes your feelings about **close friendships** on the 7-point scale. Think about all of your close friendships, past and present, and respond in terms of how you generally feel in these relationships.

1	2	3	4	5	6	7
Not at all			somewhat			very much
Like me			like me			like me

1. I find it difficult to depend on my close friends.
2. It is very important to me to feel independent from my close friends.
3. I find it easy to get emotionally close to my close friends.
4. I worry that I will be hurt if I allow myself to become too close to my friends.
5. I am comfortable without close emotional relationships with my close friends.
6. I want to be completely emotionally intimate with my close friends.
7. I worry about being alone.
8. I am comfortable depending on my close friends.
9. I find it difficult to trust my close friends completely.
10. I am comfortable having my close friends depend on me.
11. I worry that my close friends do not value me as much as I value them.
12. It is very important to me to feel self-sufficient from my close friends.
13. I prefer not to have my close friends depend on me.
14. I am somewhat uncomfortable being close to my close friends.
15. I find that my close friends are reluctant to get as close as I would like.
16. I prefer not to depend on my close friends.
17. I worry about having my close friends not accept me.

## Appendix L

### Interdependence Scale

#### Section A.

1. Please indicate the degree to which you agree with each of the following statements regarding your current friendships (please indicate an answer for each item in the space provided).

1	2	3	4
Do Not Agree At All	Agree Slightly	Agree Moderately	Agree Completely

- A) My friends fulfill my needs for Intimacy (sharing personal thoughts, secrets, etc.)  
 B) My friends fulfill my needs for companionship (doing things together, enjoying each other's company, etc.)  
 C) My friends fulfill my needs for security (feeling trusting, comfortable in a stable relationship, etc.)  
 D) My friends fulfill my needs for emotional involvement (feeling emotionally attached, feeling good when another feels good, etc.)

0	1	2	3	4	5	6	7	8
Do Not Agree At All				Agree Somewhat				Agree Completely

2. I feel satisfied with my friendships.  
 3. My friendships are much better than others' friendships.  
 4. My friendships are close to ideal.  
 5. My friendships make me very happy.  
 6. My friendships do a good job of fulfilling my needs for intimacy, companionship, etc.

#### Section B.

1. Please indicate the degree to which you agree with each statement regarding the fulfillment of each need in alternative friendships (please indicate an answer for each item in the space provided).

1	2	3	4
Do Not Agree At All	Agree Slightly	Agree Moderately	Agree Completely

- A) My needs for intimacy (sharing personal thoughts, secrets, etc.) could be filled in alternative friendships.  
 B) My needs for companionship (doing things together, enjoying each other's company, etc.) could be fulfilled in alternative friendships.  
 C) My needs for security (feeling trusting, comfortable in a stable relationship, etc.) could be fulfilled in alternative friendships.

D) My needs for emotional involvement (feeling emotionally attached, feeling good when another feels good, etc.) could be fulfilled in alternative friendships.

0	1	2	3	4	5	6	7	8
Do Not Agree				Agree				Agree
At All				Somewhat				Completely

2. The people other than my friends with whom I might begin a friendship with are very appealing.
3. My alternatives to my friendships are close to ideal.
4. If I weren't friends with my friends, I would do fine – I would find another appealing person to be friends with.
5. My alternatives are appealing to me (finding other friends).
6. My needs for intimacy, companionship, etc., could easily be fulfilled in an alternative friendships.

**Section C.**

1. Please indicate the degree to which you agree with each of the following statements regarding your current friendships (please indicate an answer for each item in the space provided).

1	2	3	4
Do Not Agree	Agree	Agree	Agree
At All	Slightly	Moderately	Completely

- A) I have invested a great deal of time in my friendships.
- B) I have told my friends many private things about myself (I disclose secrets to them).
- C) My friends and I have an intellectual life together that would be difficult to replace.
- D) My sense of personal identity (who I am) is linked to my friends and our relationships.
- E) My friends and I share many memories.

0	1	2	3	4	5	6	7	8
Do Not Agree				Agree				Agree
At All								

2. I have put a great deal into my friendships that I would lose if the friendships were to end.
3. Many aspects of my life have become linked to my friends (recreational activities, etc.), and I would lose all of this if we were to stop being friends.
4. I feel very involved in my friendships – like I have put a great deal into them.
5. My relationships with family members would be complicated if my friends and I were to stop being friends (e.g., friends are friends with people I care about).
6. Compared to other people I know, I have invested a great deal in my friendships.
7. I want my friendships to last for a very long time (please circle a number).

8. I am committed to maintaining my friendships.
9. I would not feel very upset if my friendships were to end in the near future.
10. It is likely that I will be friends with other people instead within the next year.
11. I feel very attached to my friendships – very strongly linked to my friendships.
12. I want my friendships to last forever.
13. I am oriented toward the long-term future of my friendships (for example, I imagine being friends with friends several years from now).

## Appendix M

### Personal Attributes Scale – Impression Management

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate

1. Would never take things that aren't mine.
2. Would never cheat on my taxes.
3. Believe there is never an excuse for lying.
4. Always admit it when I make a mistake.
5. Rarely talk about sex.
6. Return extra change when a cashier makes a mistake.
7. Try to follow the rules.
8. Easily resist temptations.
9. Tell the truth.
10. Rarely overindulge.
11. Have sometimes had to tell a lie.
12. Use swear words.
13. Use flattery to get ahead.
14. Am not always what I appear to be.
15. Break rules.
16. Cheat to get ahead.
17. Don't always practice what I preach.
18. Misuse power.
19. Get back at others.
20. Am likely to show off if I get the chance.

## Appendix N

### Dark Triad of Personality

Please rate the degree to which you agree with the following statements. You can be honest because your name will not be attached to the answers.

1	2	3	4	5
Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly

1. It's not wise to tell your secrets.
2. Most people who get ahead in the world lead clean moral lives.
3. Generally speaking, people won't work hard unless they have to.
4. There's a sucker born every minute.
5. Whatever it takes, you must get the important people on your side.
6. Careful what you say because you never know who may be useful in the future.
7. It's wise to keep track of information that you can use against people later.
8. You should wait for the right time to get back at people.
9. There are things you should not tell people because they don't need to know.
10. People see me as a leader.
11. I hate being the center of attention.
12. Many group activities tend to be dull without me.
13. I know that I am special because everyone keeps telling me so.
14. Those with talent and good looks should not hide them.
15. I like to get acquainted with important people.
16. I feel embarrassed if someone compliments me.
17. I have been compared to famous people.
18. I am likely to show off if I get the chance.
19. I like to get revenge on authorities.
20. I avoid dangerous situations.
21. I am a thrill seeker.
22. Payback needs to be quick and nasty.
23. People often say I'm out of control.
24. It's true that I can be cruel.
25. People who mess with me always regret it.
26. I have never gotten into trouble with the law.
27. I like to pick on losers.

## Appendix O

### Revised Cyber-Behaviours Scale

Please rate each item on the following scale indicating how many times you have experienced this behaviour *with a friend*?

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. A friend of mine has rejected my friend request on Facebook.
2. I know a friend has said negative things about me, or made fun of me on the internet or through instant messaging.
3. I believe a friend has purposely excluded me from an online conversation, online group or online event.
4. I have had a friend spread a rumour about me over the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have had a friend say nice things about me on the internet or through instant messaging.
6. I have had a friend reveal embarrassing or confidential personal information about me on the internet.
7. I know a friend has forwarded a private e-mail of mine to at least one of their friends without my permission.
8. I have had a friend call me inappropriate names on the internet.
9. I have had a friend post a rude comment on a photo or status update that I posted on the internet.
10. I have had a friend post a photo of me on the internet because they thought I looked good in it.
11. I have had a friend post embarrassing photos of me on the internet without my permission.
12. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be a friend using a fake account.
13. I have had a friend make a Facebook group or website made about me, with the purpose of making fun of me.
14. I have had a friend make a negative remark about my physical appearance (e.g. weight) on the internet or through instant messaging.
15. I have had a friend make a negative remark about my religion on the internet or through instant messaging.
16. I have had a friend make a negative remark about my sexual orientation on the internet or through instant messaging.
17. I have had a friend make a negative remark about my disability on the internet or through instant messaging.
18. I have had a friend make a sexist comment made about me on the internet.
19. I have had a friend make a racist remark made about me on the internet.
20. I have had friend make a positive remark made about me on the internet.

21. I have received unwelcome comments from a friend through the internet or other forms of instant messaging (cellphone).
22. I believe a friend has hacked into my computer or personal accounts (e.g. email or Social Networking account).
23. I believe a friend has purposely sent me a lot of spam with the intention of crashing my computer.
24. I believe a friend has sent my computer a virus on purpose.
25. I have received unwanted sexual comments from a friend through the internet or instant messaging.
26. I have had a friend send a naked photo of me to other people or posted it on the internet without my permission.
27. I have had a friend send a sexual video of me to other people or posted it on the internet without my permission.
28. I have received messages on the internet from a friend, who I purposely did not respond to.
29. Someone I consider a friend has stalked me online.
30. I have had a friend defend me on the internet after someone made negative remarks about me online.
31. Someone I consider a friend has blackmailed me through the internet.
32. I have had a friend make a threat towards me through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have experienced this behaviour with *an acquaintance*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. An acquaintance has rejected my friend request on Facebook.
2. I know an acquaintance has said negative things about me, or made fun of me on the internet or through instant messaging.
3. I believe an acquaintance has purposely excluded me from an online conversation, online group or online event.
4. I have had an acquaintance spread a rumour about me over the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have had an acquaintance say nice things about me on the internet or through instant messaging.
6. I have had an acquaintance reveal embarrassing or confidential personal information about me on the internet.
7. I know an acquaintance has forwarded a private e-mail of mine to at least one of their friends without my permission.
8. I have had an acquaintance call me inappropriate names on the internet.
9. I have had an acquaintance post a rude comment on a photo or status update that I posted on the internet.
10. I have had an acquaintance post a photo of me on the internet because they thought I looked good in it.

11. I have had an acquaintance post embarrassing photos of me on the internet without my permission.
12. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be an acquaintance using a fake account.
13. I have had an acquaintance make a Facebook group or website made about me, with the purpose of making fun of me.
14. I have had an acquaintance make a negative remark about my physical appearance (e.g. weight) on the internet or through instant messaging.
15. I have had an acquaintance make a negative remark about my religion on the internet or through instant messaging.
16. I have had an acquaintance make a negative remark about my sexual orientation on the internet or through instant messaging.
17. I have had an acquaintance make a negative remark about my disability on the internet or through instant messaging.
18. I have had an acquaintance make a sexist comment made about me on the internet.
19. I have had an acquaintance make a racist remark made about me on the internet.
20. I have had an acquaintance make a positive remark made about me on the internet.
21. I have received unwelcome comments from an acquaintance through the internet or other forms of instant messaging (cellphone).
22. I believe an acquaintance has hacked into my computer or personal accounts (e.g. email or Social Networking account).
23. I believe an acquaintance has purposely sent me a lot of spam with the intention of crashing my computer.
24. I believe an acquaintance has sent my computer a virus on purpose.
25. I have received unwanted sexual comments from an acquaintance through the internet or instant messaging.
26. I have had an acquaintance send a naked photo of me to other people or posted it on the internet without my permission.
27. I have had an acquaintance send a sexual video of me to other people or posted it on the internet without my permission.
28. I have received messages on the internet from an acquaintance, who I purposely did not respond to.
29. Someone I consider an acquaintance has stalked me online.
30. I have had an acquaintance defend me on the internet after someone made negative remarks about me online.
31. Someone I consider an acquaintance has blackmailed me through the internet.
32. I have had an acquaintance make a threat towards me through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have experienced this behaviour *with a stranger*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. A stranger has rejected my friend request on Facebook.

2. I know a stranger has said negative things about me, or made fun of me on the internet or through instant messaging.
3. I believe a stranger has purposely excluded me from an online conversation, online group or online event.
4. I have had a stranger spread a rumour about me over the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have had a stranger say nice things about me on the internet or through instant messaging.
6. I have had a stranger reveal embarrassing or confidential personal information about me on the internet.
7. I know a stranger has forwarded a private e-mail of mine to at least one of their friends without my permission.
8. I have had a stranger call me inappropriate names on the internet.
9. I have had a stranger post a rude comment on a photo or status update that I posted on the internet.
10. I have had a stranger post a photo of me on the internet because they thought I looked good in it.
11. I have had a stranger post embarrassing photos of me on the internet without my permission.
12. I have received negative comments from an anonymous user on my Social Networking account, who I believe to be a stranger using a fake account.
13. I have had a stranger make a Facebook group or website made about me, with the purpose of making fun of me.
14. I have had a stranger make a negative remark about my physical appearance (e.g. weight) on the internet or through instant messaging.
15. I have had a stranger make a negative remark about my religion on the internet or through instant messaging.
16. I have had a stranger make a negative remark about my sexual orientation on the internet or through instant messaging.
17. I have had a stranger make a negative remark about my disability on the internet or through instant messaging.
18. I have had a stranger make a sexist comment made about me on the internet.
19. I have had a stranger make a racist remark made about me on the internet.
20. I have had a stranger make a positive remark made about me on the internet.
21. I have received unwelcome comments from a stranger through the internet or other forms of instant messaging (cellphone).
22. I believe a stranger has hacked into my computer or personal accounts (e.g. email or Social Networking account).
23. I believe a stranger has purposely sent me a lot of spam with the intention of crashing my computer.
24. I believe a stranger has sent my computer a virus on purpose.
25. I have received unwanted sexual comments from a stranger through the internet or instant messaging.
26. I have had a stranger send a naked photo of me to other people or posted it on the internet without my permission.

27. I have had a stranger send a sexual video of me to other people or posted it on the internet without my permission.
28. I have received messages on the internet from a stranger, who I purposely did not respond to.
29. Someone I consider a stranger has stalked me online.
30. I have had a stranger defend me on the internet after someone made negative remarks about me online.
31. Someone I consider a stranger has blackmailed me through the internet.
32. I have had a stranger make a threat towards me through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have engaged in this behaviour *with a friend*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. I have rejected a friend request on Facebook from someone that I consider a friend.
2. I have said negative things, or made fun of a friend on the internet or through instant messaging.
3. I have purposely excluded a friend from an online conversation, online group or online event.
4. I have made up a rumour about a friend, and spread it to someone else using the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have said nice things about a friend on the internet or through instant messaging.
6. I have revealed embarrassing or confidential personal information about a friend on the internet.
7. I have forwarded private e-mails from a friend to at least one other person without permission.
8. I have called a friend an inappropriate name on the internet.
9. I have posted a rude comment on a photo or status update that a friend posted on the internet.
10. I have posted a photo on the internet of a friend that I thought they looked good in.
11. I have posted embarrassing photos of a friend on the internet without permission.
12. I have created a fake Social Networking account in order to anonymously make negative comments towards a friend.
13. I have made a Facebook group or website about a friend with the purpose of making fun of them.
14. I have made a negative remark regarding a friend's physical appearance (e.g. weight) on the internet or through instant messaging.
15. I have made a negative remark regarding a friend's religion through the internet or instant messaging.
16. I have made a negative remark about a friend's sexual orientation through the internet or instant messaging.
17. I have made negative remarks about a friend's disability through the internet or instant messaging.

18. I have made a sexist remark about a friend on the internet.
19. I have made a racist remark about a friend on the internet.
20. I have made a positive remark made about a friend on the internet.
21. I have made unwelcome comments to a friend through the internet or other forms of instant messaging.
22. I have hacked into my friend's computer or personal accounts (e.g. email or Social Networking account).
23. I have purposely sent a friend a lot of spam with the intention of crashing their computer.
24. I have sent a friend's computer a virus on purpose.
25. I have made unwanted sexual comments towards a friend through the internet or instant messaging.
26. I have taken a naked photo of a friend and sent it to other people or posted it on the internet without permission.
27. I have recorded a sexual video of a friend and sent it to other people or posted it on the internet without permission.
28. I have sent messages to a friend using the internet without any response back.
29. I have stalked a friend online.
30. I have defended a friend on the internet after someone made negative remarks about them.
31. I have used the internet in order to blackmail a friend.
32. I have threatened a friend through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have engaged in this behaviour *with an acquaintance*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. I have rejected a friend request on Facebook from someone that I consider an acquaintance.
2. I have said negative things, or made fun of an acquaintance on the internet or through instant messaging.
3. I have purposely excluded an acquaintance from an online conversation, online group or online event.
4. I have made up a rumour about an acquaintance, and spread it to someone else using the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have said nice things about an acquaintance on the internet or through instant messaging.
6. I have revealed embarrassing or confidential personal information about an acquaintance on the internet.
7. I have forwarded private e-mails from an acquaintance to at least one other person without permission.

8. I have called an acquaintance an inappropriate name on the internet.
9. I have posted a rude comment on a photo or status update that an acquaintance posted on the internet.
10. I have posted a photo on the internet of an acquaintance that I thought they looked good in.
11. I have posted embarrassing photos of an acquaintance on the internet without permission.
12. I have created a fake Social Networking account in order to anonymously make negative comments towards an acquaintance.
13. I have made a Facebook group or website about an acquaintance with the purpose of making fun of them.
14. I have made a negative remark regarding an acquaintance's physical appearance (e.g. weight) on the internet or through instant messaging.
15. I have made a negative remark regarding an acquaintance's religion through the internet or instant messaging.
16. I have made a negative remark about an acquaintance's sexual orientation through the internet or instant messaging.
17. I have made negative remarks about an acquaintance's disability through the internet or instant messaging.
18. I have made a sexist remark about an acquaintance on the internet.
19. I have made a racist remark about an acquaintance on the internet.
20. I have made a positive remark made about an acquaintance on the internet.
21. I have made unwelcome comments to an acquaintance through the internet or other forms of instant messaging.
22. I have hacked into an acquaintance's computer or personal accounts (e.g. email or Social Networking account).
23. I have purposely sent an acquaintance a lot of spam with the intention of crashing their computer.
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26. I have taken a naked photo of an acquaintance and sent it to other people or posted it on the internet without permission.
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28. I have sent messages to an acquaintance using the internet without any response back.
29. I have stalked an acquaintance online.
30. I have defended an acquaintance on the internet after someone made negative remarks about them.
31. I have used the internet in order to blackmail an acquaintance.
32. I have threatened an acquaintance through the internet or other forms of instant messaging (cellphone).

**Please rate each item on the following scale indicating how many times you have engaged in this behaviour *with a stranger*?**

0	1	2	3	4	5	6
Never	1-2 Times	3-4 Times	5-6 Times	7-8 Times	9-10 Times	11 or more Times

1. I have rejected a friend request on Facebook from someone that I consider a stranger.
2. I have said negative things, or made fun of a stranger on the internet or through instant messaging.
3. I have purposely excluded a stranger from an online conversation, online group or online event.
4. I have made up a rumour about a stranger, and spread it to someone else using the internet, Social Networking websites, or other forms of instant messaging (cellphone).
5. I have said nice things about a stranger on the internet or through instant messaging.
6. I have revealed embarrassing or confidential personal information about a stranger on the internet.
7. I have forwarded private e-mails from a stranger to at least one other person without permission.
8. I have called a stranger an inappropriate name on the internet.
9. I have posted a rude comment on a photo or status update that a stranger posted on the internet.
10. I have posted a photo on the internet of a stranger that I thought they looked good in.
11. I have posted embarrassing photos of a stranger on the internet without permission.
12. I have created a fake Social Networking account in order to anonymously make negative comments towards a stranger.
13. I have made a Facebook group or website about a stranger with the purpose of making fun of them.
14. I have made a negative remark regarding a stranger's physical appearance (e.g. weight) on the internet or through instant messaging.
15. I have made a negative remark regarding a stranger's religion through the internet or instant messaging.
16. I have made a negative remark about a stranger's sexual orientation through the internet or instant messaging.
17. I have made negative remarks about a stranger's disability through the internet or instant messaging.
18. I have made a sexist remark about a stranger on the internet.
19. I have made a racist remark about a stranger on the internet.
20. I have made a positive remark made about a stranger on the internet.
21. I have made unwelcome comments to a stranger through the internet or other forms of instant messaging.
22. I have hacked into my stranger's computer or personal accounts (e.g. email or Social Networking account).
23. I have purposely sent a stranger a lot of spam with the intention of crashing their computer.
24. I have sent a stranger's computer a virus on purpose.
25. I have made unwanted sexual comments towards a stranger through the internet or instant messaging.
26. I have taken a naked photo of a stranger and sent it to other people or posted it on the internet without permission.

27. I have recorded a sexual video of a stranger and sent it to other people or posted it on the internet without permission.
28. I have sent messages to a stranger using the internet without any response back.
29. I have stalked a stranger online.
30. I have defended a stranger on the internet after someone made negative remarks about them.
31. I have used the internet in order to blackmail a stranger.
32. I have threatened a stranger through the internet or other forms of instant messaging (cellphone).