

THE DARK TRIAD AND INTERPERSONAL ASSESSMENT OF VULNERABILITY:
CUES USED AND ACCURACY

by

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Abstract

Observer assessments of the character and emotional features of targets occur subconsciously and inform the nature of interpersonal interactions. Despite the frequency with which people engage in interpersonal perceptions, little is known about how observers come to their conclusions about the characteristics of others and whether these assessments are valid. This thesis examined the role of individual differences in interpersonal perception; specifically, I was interested in whether individuals with “dark” personalities (psychopathy, Machiavellianism, narcissism) who frequently victimize others may be more adept at assessing the traits of others to facilitate the ease of picking vulnerable targets. The purpose of the current thesis was twofold; first to generate a data-driven model of the manner in which individuals, particularly those possessing Dark Triad traits, assess others, including the cues that they use to inform their decisions. Secondly, I examined the accuracy of observers varying in Dark Triad traits in their ability to assess the personality and emotional traits characteristic of vulnerability in others. The results of the first part of the study revealed that high Dark Triad scoring individuals reliably use specific cues to derive their interpersonal assessments, and that there are a number of biases that Dark Triad individuals hold that may hinder their ability to accurately assess others. Specifically, those scoring high on the Dark Triad perceive others as less agreeable, having low self-esteem, and highly neurotic, anxious, and depressed. The results of the second part of the study reveal that indeed these negative perceptions of others hinder the ability of Dark Triad individuals to accurately assess others. There were few significant findings for accuracy, and the relationships that were significant revealed that Dark Triad individuals were worse at assessing others. When

broken down by presentation modality, there were no significant Dark Triad by modality interactions, though there were a number of significant main effects of modality type. Specifically, participants were best able to assess target's traits using the video only modality and were significantly worse at assessing target's traits when using the transcript modality. The implications of these findings and future directions for research are discussed.

Preface

Ethics approval for this research was granted by the University of British Columbia's Behavioural Research Ethics Board on September 22nd, 2011. The ethics approval certificate number for the current study is H11-02013. To date, the research included in this thesis has not been published.

Table of Contents

Abstract	ii
Preface	iv
Table of Contents	v
List of Tables	ix
Acknowledgments	x
Dedication	xi
1 Introduction	1
1.1 The Dark Triad	2
1.1.1 Psychopathy	3
1.1.2 Machiavellianism	7
1.1.3 Narcissism	10
1.2 Dark Triad and Active Strategies for Manipulation and Exploitation	14
1.3 Cues Used to Assess Personality Traits in Targets	18
1.3.1 Facial Expressions	19
1.3.2 Body Language	20
1.3.3 Linguistic Cues	22

1.4	Accuracy for Assessing the Personality Traits of Targets in General.....	25
1.5	Personality Traits That are Predictive of Vulnerability	26
1.6	Accuracy for Assessing the Vulnerability of Targets	30
1.7	Current Study	34
2	Methods	39
2.1	Participants.....	39
2.2	Materials.....	39
2.2.1	Videos.....	39
2.2.2	Self-Report Psychopathy Scale-III.....	40
2.2.3	MACH-IV	41
2.2.4	Narcissistic Personality Inventory	41
2.2.5	Emotional and Personality Traits Evaluation Questionnaire	41
2.3	Procedure	42
2.4	General Data Cleaning	43
3	Results	45
3.1	Preliminary Statistics	45
3.1.1	Dark Triad Scales	45

3.1.2	Key Variables	47
3.2	The Relation Between Dark Triad and Interpersonal Perceptions of Vulnerability in Targets	48
3.2.1	Cues Used	48
3.2.2	Dark Triad and Cues Used	51
3.2.3	Dark Triad and General Perception of Targets	52
3.3	The Relation Between Dark Triad and Accuracy of Interpersonal Perceptions of Vulnerability in Targets	53
3.3.1	Personality Trait Judgment Accuracy	53
3.3.2	Overall and Individual Trait Accuracy	54
3.3.3	Dark Triad and Overall Accuracy	55
3.3.4	Dark Triad and Individual Trait Accuracy	56
3.3.5	Dark Triad and Accuracy by Gender of Observer	57
3.3.6	Dark Triad and Modality	59
4	Discussion	62
4.1	The Relation Between Dark Triad and Interpersonal Perceptions of Vulnerability in Targets	62

4.2	The Relation Between Dark Triad and Accuracy of Interpersonal Perceptions of Vulnerability in Targets	66
4.3	Limitations	76
4.4	Future Directions	77
References		81
Appendices		116
	Appendix A	116

List of Tables

Table 3.1	Alpha reliabilities for SRP-III Total, NPI Total, and MACH-IV total scores	46
Table 3.2	Means, standard deviations, and ranges for the SRP-III, NPI, and MACH-IV, and Dark Triad total scores for the overall sample, males, and females	47
Table 3.3	Pearson bivariate correlations between primary study variables	48
Table 3.4	Means, ranges, and standard deviations for the average number of cues used to assess vulnerability in targets	49
Table 3.5	Means, standard deviations, and ranges for overall and individual trait accuracy	55
Table 3.6	Means and standard deviations of difference scores for target/observer agreement across modalities	61
Table A-1	Means and standard deviations for target personality and emotional traits	123

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Dedication

To my parents.

“Therefore, it is necessary to be a fox to discover the snares and a lion to terrify the wolves.”

— Niccolò Machiavelli, *Il Principe*

1. Introduction

The interpersonal perception of others occurs subconsciously or consciously in everyday life. Observers make instantaneous decisions about the character of strangers (targets) within milliseconds of meeting them (e.g., Martelli, Majib, & Pelli, 2005; Willis & Todorov, 2006). People use cues from facial characteristics and expressions, verbal and non-verbal behaviour, and their schemas in brief interactions to make snap decisions about targets, including their level of attractiveness, trustworthiness, and even their personality traits and character (e.g., Amihai, Deouell, & Bentin, 2011; Arsalidou, Morris, & Taylor, 2011; Porter & ten Brinke, 2008; Todorov, Mandisodza, Goren, & Hall, 2005). These assessments, although frequently inaccurate, then are used to inform the observer's subsequent interactions with the target (e.g., Kilianski, 2008; Porter & ten Brinke, 2008). It may be as serious as deeming the target to be a threat and preparing for fight-or-flight, or as benign as informing the manner in which one interacts socially with this new person. The ability to accurately assess the personality and emotions of others is evolutionarily adaptive; it is advantageous to be able to quickly determine whether a target is a threat and then act accordingly. In fact, this type of interpersonal assessment may have been one of the earliest ones to have evolved (e.g., ten Brinke & Porter, in press). Despite the advantage that accurate interpersonal perception can confer, the accuracy of the perception of personality traits such as the Big 5 (i.e., openness to new experiences, conscientiousness, extraversion, agreeableness, and neuroticism) and self-esteem are

moderate at best (Carney, Colvin, & Hall, 2007; Oltmanns & Turkheimer, 2009). However, there may exist a subset of individuals for whom interpersonal perception is relatively valid. Individuals with “dark” personality traits who frequently engage in the manipulation and exploitation of others may be better able to target their victims based on an enhanced ability to detect the personality and emotional traits characteristic of vulnerability in others. Little is known about the strategies used by Dark Triad (psychopathic, narcissistic, and Machiavellian) individuals in order to select victims and whether they are able to accurately assess traits related to target vulnerability, in particular. The current study sought to explore the interpersonal perception strategies among observers generally and Dark Triad individuals, specifically. The purpose of my thesis was to examine two distinct aspects of interpersonal perception, the first being the manner in which observers in general and those with the Dark Triad traits specifically assess targets, and the second being whether these assessments accurately reflect the traits of others. Thus, I endeavoured to examine the strategies (reliability or agreement) and accuracy (validity) of observers in identifying personality and emotional vulnerability of others (targets).

1.1 The Dark Triad

The Dark Triad is a set of three personality constructs that are considered to be socially aversive: subclinical psychopathy, Machiavellianism, and subclinical narcissism (Paulhus & Williams, 2002). This constellation of personality constructs has been deemed socially aversive because possessing these traits is predictive of antisocial behaviour, particularly manipulation and exploitation. Individuals who possess characteristics of any of the three personality constructs of the Dark Triad are likely to be selfish, possess a grandiose sense

of self-importance, and be manipulative and exploitative (Lee & Ashton, 2005). Although these three personality constructs are related to one another, the correlations are modest indicating that each of these three constructs is a distinct collection of personality traits and that each represent a different aspect of a dark personality (Jonason, Koenig, & Tost, 2010; Lee & Ashton, 2005; Paulhus & Williams, 2002). Each of these three personality traits will be discussed individually followed by a more in-depth discussion of the Dark Triad construct.

1.1.1 Psychopathy

Psychopathy is a personality disorder estimated to affect about 1% of the general population (Hare, 2006) and 15-25% of male offenders in federal correctional settings (e.g., Porter et al., 2000). Psychopathy is characterized by poor interpersonal skills (e.g., being deceitful and manipulative), a disturbed affect (e.g., the inability to feel empathy and/or remorse), and behavioural problems (e.g., being impulsive, committing crimes) (Hare, 2003; Hare, Black, & Walsh, in press; Hare & Neumann, 2008). Personality traits commonly associated with psychopathy are high impulsivity and thrill seeking, low empathy and anxiety, and emotional coldness (Hare, 2003).

Psychopaths appear to have little or no conscience (Hare, 2006). The absence of this inhibitory mechanism, restricting most others from acting on antisocial thoughts, allows them to engage in a wide range of antisocial behaviour and criminal acts that often are violent in nature (Hare, 2006; Jones & Miller, 2012). Woodworth and Porter (2002) revealed that psychopathic men are more likely to commit premeditated, goal-driven homicides. This suggests that although psychopaths often act impulsively, they also are

able to plan and execute crimes targeted against specific individuals (Hare, 2003; Woodworth & Porter, 2002).

Relative to other offenders, psychopaths begin committing crimes at a younger age and go on to commit a wider variety of offenses, including violent crimes (Hare, 2003; Laurell & Dåderman, 2005). Individuals with psychopathic traits also re-offend faster, violate parole sooner, perpetrate a higher degree of violence during their crimes, and commit more institutional violence (e.g., Laurell & Dåderman, 2005; Porter, Birt, & Boer, 2001; Porter, Woodworth, Earle, Drugge, & Boer, 2003). Not only do they target specific individuals for crimes, they often are responsible for victimizing a large number of people. Given the robust association between psychopathy, crime, and violence (see Hare, 2006), psychopathy has become one of the most important psychological constructs within the criminal justice system (e.g., Hare, Clark, Grann, & Thornton, 2000; Hare & Neumann, 2010).

Psychopaths are believed to possess an emotional deficit that hinders their ability to recognize and understand the emotional expressions of others (Anastassiou-Hadjicharalambous & Warden, 2008; Blair et al., 2004; Brook & Kosson, 2012; Del Gaizo & Falkenbach, 2008; Dolan & Fullam, 2006; Mahmut, Homewood, & Stevenson, 2008; Malterer, Glass, & Newman, 2008; Wai & Tiliopoulos, 2012; Zágón & Jackson, 1994). In fact, this emotional deficit is a key piece of the theoretical understanding of psychopathy; it is the focus of 4 of the 20 PCL-R items (Hare, 2003; Rogstad & Rogers, 2008). There have been numerous studies that support the existence of the emotional deficit in psychopaths. For example, Brook and Kosson (2012) found that empathic accuracy was inversely related to PCL-R scores among a sample of male incarcerated

offenders when they were asked to identify facial expressions as the faces morphed from an intense expression to a neutral expression.

In addition to their inability to recognize emotional expressions in others, there also is much evidence to suggest that psychopaths are unable to experience normal human emotions themselves (Anderson & Stanford, 2012; Hare, 2003). The emotional deficit can manifest itself in a number of ways, including impaired reactions to stimuli that should cause strong emotions, a lack of empathy (both affective and cognitive). There also may be specific deficits in affective empathy, the ability to experience the emotions of another, and cognitive empathy, the ability to recognize and comprehend the emotions of others but not experience them oneself (Jolliffe & Farrington, 2004; Rogers & Rogstad, 2008). Finally, the emotional deficit may present as a lack of global empathy, the inability to recognize and feel the emotions of others (Rogstad & Rogers, 2008).

Although the emotional deficit is included in the theoretical model of psychopathy and there is much evidence to support its existence, there also is contradictory evidence to suggest that psychopaths do not lack empathy or possess an emotional deficit (Blair, Sellars, Strickland, & Clark, 1996; Hansen, Johnsen, Hart, Waage, & Thayer, 2008; Jones, Happé, Gilbert, Burnett, & Viding, 2010; Mullins-Nelson, Salekin, & Leistico, 2006; Shamay-Tsoory, Harari, Aharon-Peretz, & Levkovitz, 2010). For example, when Glass and Newman (2006) presented psychopathic offenders with images of facial expressions, they were as accurate as the control group at identifying the emotional expressions presented, and were better than the control group at recognizing the expression of fear. A heightened ability to recognize a fearful expression was found in a similar study conducted with children diagnosed with conduct disorder (Woodworth &

Waschbusch, 2008). These studies suggest that psychopaths possess an enhanced ability to recognize emotion in others (Book & Quinsey, 2004; Glass & Newman, 2006; see also Pham, Ducro, & Luminet, 2010).

Although psychopaths may be able to identify the facial expressions of others, they may not be able to comprehend the experience of these emotions (Dolan & Fullam, 2004, 2006). For example, in a study examining moral reasoning, psychopathic individuals demonstrated poor moral judgment by endorsing the belief that accidents that harm others are morally permissible (Young, Koenigs, Kruepke, & Newman, 2012). Further, psychopathic participants were more likely to blame the victim for these accidents. This research suggests that psychopaths are not able to empathize with the suffering of others in general, and victims in particular. This likely is not a conscious choice that psychopaths make but rather an actual deficit in empathy. This deficit prevents psychopaths from ever experiencing strong emotions that typically are associated with morality (Rogstad & Rogers, 2008).

Psychopathy is the most aggressive and overtly criminal of the subcomponents of the Dark Triad. Psychopaths often are hostile and aggressive, and have few qualms about exploiting others for their own benefit (Seibert, Miller, Few, Zeichner, & Lynam, 2011). This predilection for crime and the inability to feel guilt for their actions or empathy for their victims may enable psychopaths to be skilled and experienced manipulators who are easily able to take advantage of others to benefit themselves. Although they may be able to exploit others without remorse, their potential inability to recognize and comprehend emotional expressions in others may hinder their ability to accurately assess the traits associated with vulnerability, which may be directly related to choosing victims. If

psychopaths are unable to use facial expressions to assess the personality and emotional traits of targets, they may be forced to use other cues (verbal and non-verbal) to make their decisions.

1.1.2 Machiavellianism

The famed writings of Niccolò Machiavelli (1469–1527) advocated for manipulative, amoral, and deceptive behaviour in achieving power in politics and society (see Kessler et al., 2010). In *The Prince*, Machiavelli expressed the ideal qualities of a successful political ruler, and based on his writings, the term *Machiavellianism* has become synonymous with callous, manipulative, and deceptive personality characteristics (see Kessler et al., 2010). Christie and Geis, two of the first researchers to study Machiavellianism as a personality construct, published a book in 1970 about the Machiavellian personality. This seminal work included a theoretical explanation of the construct, empirical studies to support their theory, as well as a scale to measure Machiavellianism. This book inspired numerous other studies to better understand the Machiavellian personality. Currently, Machiavellianism is thought to be best represented by an individual who is manipulative, more interested in him/herself than others, and willing to use deception and manipulation if it will benefit him/herself, as well as being unconcerned about the repercussions for their victims (Jakobwitz & Egan, 2006; LaFontana & Cillessen, 2002).

Similar to the emotional deficit in psychopaths, Machiavellianism has been strongly associated with alexithymia, a disorder that is characterized by the inability to feel empathy for others (Picardi, Toni, & Caroppo, 2005). Wastell and Booth (2003)

tested the relationship between Machiavellianism and alexithymia using questionnaire data in a large sample of university students. Results showed a strong bond between Machiavellianism and alexithymia, and in particular a strong relationship between Machiavellianism and difficulty identifying and comprehending the emotions of others emerged. Similarly, Sutton, Smith, and Swettenham (1999) revealed that Machiavellians may not possess the ability to feel full empathy for others but are able to experience cognitive empathy. Both of these studies support the notion that Machiavellians lack empathy for their victims; this may allow them to be more ruthless social predators. The ability of Machiavellians to successfully manipulate others in social situations may be related to their ability to recognize the emotional cues to vulnerability in targets, exploit those vulnerable individuals, and move on without ever feeling empathy for their victims (Austin, Farrelly, Black, & Moore, 2007; Sutton et al., 1999).

Although Machiavellianism is generally considered to be a socially aversive personality construct, Machiavellianism also has proven to be a successful social and mating strategy. For example, Machiavellians are excellent at impression management and often are selected for high power positions because they appear to be strong, assertive leaders (e.g., Jonason, Slomski, & Partyka, 2012). Also, male Machiavellians have many short-term relationships with women. From an evolutionary standpoint, short-term mating behaviour is considered adaptive to optimize reproduction (Jonason, Luevano, & Adams, 2012). In relation to offending, Machiavellians are able to manipulate quickly, often having short-term encounters with their victims (both men and women), exploiting the individual for whatever resources that he or she may have, and then move on without expending a great amount of time or resources (Linton & Wiener, 2001). Although their

ability to easily charm and manipulate may at times be advantageous, there also are disadvantages to possessing this personality construct. For example, Machiavellians have few, if any, close friends because their interpersonal style negatively affects their ability to maintain interpersonal relationships. They tend to distance themselves from others and are not able to form close emotional bonds (Christie & Geis, 1970). Although previous research has found that Machiavellians maintain a distance in interpersonal relationships, research also has revealed that they can be quite charming if it will aid in their manipulation. Not only are they skilled at manipulating others, they are acutely aware of their ability to charm and manipulate and use this skill to exploit others (O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011).

Considering their lack of emotional connection to others, Machiavellians often engage in unethical behaviours such as dishonesty and cheating (Kish-Gephart, Harrison, & Treviño, 2010). Although psychopaths are more criminally-oriented than Machiavellians, this personality construct also has been linked to some types of aggression such as juvenile violence and proactive aggression (Hadjar, Baier, Boehnke, & Hagan, 2007; Peeters, Cillessen, & Scholte, 2010; Wilson, Near, & Miller, 1996). Similar to psychopathy, the Machiavellians' ability to dupe others without feeling guilt allows them to be prolific exploiters. To date, the manner in which Machiavellians choose their victims and the nature of their exploitation largely has been unexplored. Research suggests that Machiavellians have difficulty assessing and identifying with the emotions of others (Wastell & Booth, 2003), making it difficult to accurately assess the personality and emotional traits of targets for the purpose of assessing vulnerability. However, Machiavellians often are successful at manipulation and exploitation, so it is possible that

these individuals possess an enhanced ability to choose victims who are vulnerable to victimization.

1.1.3 Narcissism

Narcissism is a stable personality construct that consists of grandiosity, self-love, and inflated self-views (Campbell, Brunell, & Finkel, 2006). Individuals who possess characteristics of narcissism feel dominant, grandiose, and superior to others and are self-entitled (Menon & Sharland, 2011; Paulhus & Williams, 2002). Narcissism, first recognized as a disorder in the 1980s, is the only Dark Triad construct that appears in the DSM-IV-TR (APA, 1994). In 2008, it was estimated that 6.2% of the population met the DSM-IV-TR criteria for narcissism (Grant et al., 2008). To be diagnosed as narcissistic, a person must meet at least five of the nine criteria listed in the DSM-IV-TR (APA, 2000). Diagnostic criteria include having a grandiose sense of self-importance, being self-entitled, being preoccupied with fantasies of wealth and power, requiring admiration from others, being arrogant with others they deem to be beneath them, and lacking empathy for others (APA, 1994). Despite many of the currently existing personality disorders being removed from the DSM-5, narcissism is proposed to continue to be included in this popular diagnostic manual, demonstrating its importance as a psychological construct that requires closer examination (e.g., Porter, Black, & Korva, 2012).

Generally, narcissists are confident and arrogant individuals who show no concern for others. Narcissists also use self-promoting behaviours to get ahead and are obsessed with their appearance. An example of the manifestation of narcissism in the real world can be seen on Facebook (Carpenter, 2012); narcissists who use this social networking

site are more likely to display self-promoting behaviours such as frequent status and profile updates, as well as vain behaviours, such as frequently taking pictures of themselves and posting them to the site (Carpenter, 2012). While narcissism can manifest as a benign self-obsession, pathological narcissists may exhibit anti-social behaviour similar to that of psychopaths and Machiavellians.

Pathological narcissists have an increased level of superiority and self-absorption (Ackerman et al., 2011; Kerig & Stellwagen, 2010). They also are likely to possess high levels of exhibitionism, envy, and instability in mood (Kernberg, 1998). The grandiosity that they possess is likely to lead them to exhibit arrogant attitudes, entitlement, and an inflated level of self-esteem, which in turn leads them to display interpersonal behaviours characterized by exploitativeness, entitlement, and exhibitionism (Ackerman et al., 2011). Their extreme desire for power allows them to experience a low degree of empathy and to be manipulative and exploitative in relationships (Campbell, Hoffman, Campbell, & Marchisio, 2011; Wai & Tilipoulos, 2012).

Although narcissists appear to have a very high degree of self-esteem, their actual self-esteem is quite unstable and completely dependent on maintaining social approval (Zuckerman & O'Loughun, 2009). To better understand the relationship between narcissism and self-esteem, Myers and Ziegler-Hill (2012) involved the use of the bogus pipeline technique. The bogus pipeline technique was necessary to assess the genuine beliefs of the narcissistic participants as they often self-aggrandize and deceive others as to their true feelings of self-worth. Participants were required to complete a measure of narcissism and self-esteem and were then hooked up to what they believed to be a polygraph machine and completed the measure of self-esteem once again. Results showed

that narcissistic participants reported having lower self-esteem than the control group when they believed their credibility was being closely monitored. The fragile self-esteem characteristic of narcissism contributes to a narcissist's grandiosity and behavior, implying an inflated sense of self-worth (Myers & Ziegler-Hill, 2012). Narcissists' fragile self-esteem and sense of inferiority also may be the cause of their aggression (Washburn, McMahon, King, Reinecke, & Silver, 2004). Narcissists possess a strong need to exert control over others and can be vindictive if they feel that they have been betrayed or if their self-esteem is attacked (Kealy & Ogrodniczuk, 2011).

Narcissism has been positively related to aggressive behaviours such as bullying and cyber-bullying (Ang, Tan, & Talib Mansor, 2011; Reidy, Zeichner, Foster, & Martinez, 2008). Their aggression often is proactive; that is, they are self-motivated to exhibit the aggression, and are not simply reacting aggressively to stimuli in their environment. Narcissists will resort to any method of exploitation to increase their own wealth (Ang et al., 2011). Similar to the other two personality constructs associated with the Dark Triad, narcissists lack empathy for others. They view others as a means through which their need for admiration and confirmation of self-views can be attained, and this self-obsession has been linked to a low level of empathy for others (Campbell, Reeder, Sedikides, & Elliot, 2000; Watson & Morris, 1991). An fMRI study of narcissism and empathy by Fan and colleagues (2011) revealed that there is physiological and neurological evidence for an empathy deficit in the minds of narcissists. Specifically, there was less activation in the right anterior insula, an area of the brain related to emotion regulation and social experience, among narcissistic individuals. Individuals who displayed less neuronal activation also scored higher on a measure of alexithymia. This

study suggests that narcissists possess a biological deficit in the ability to feel empathy for others.

Although narcissists are known to possess a low degree of empathy, research has shown that of the three Dark Triad constructs, narcissists have the highest capacity for empathy (Wai & Tiliopoulos, 2012). This likely is due to a need for admiration and reinforcement of self-esteem; a higher level of empathy would be necessary to be better able to perceive the emotions of others (Wai & Tiliopoulos, 2012). For example, Vonk, Zeigler-Hill, Mayhew, and Mercer (in press) found that while general narcissism is associated with a lack of empathy, those scoring high in grandiosity also had a high degree of empathy, emotional intelligence, and perspective taking. This is likely because individuals scoring high in grandiosity need constant affirmation that they are “special” and would need to be able to read social cues to confirm that others believed them to be important. It should be noted that although narcissists have the highest capacity for empathy of the three Dark Triad traits, it remains low compared to controls. This lack of empathy and emotional understanding for others, coupled with their self-obsession, may make it difficult for narcissists to accurately assess the personality and emotional traits characteristic of vulnerability in targets. However, there is some research to show that narcissists may be able to pay attention to others if it suits self-serving needs, such as their need for flattery (Wai & Tiliopoulos, 2012). If they are able to pay acute attention to others when it benefits them, it is possible that narcissists will be able under some circumstances to accurately assess the traits associated with vulnerability in targets.

1.2 Dark Triad and Active Strategies for Manipulation and Exploitation

Although Machiavellianism, narcissism, and psychopathy are distinct constructs, it is evident that all three have two important common features: the use of exploitation and a lack of empathy for others (Holtzman, 2011; Jonason, Li, & Teicher, 2010; Rauthmann, 2012). Individuals characteristic of the Dark Triad are able to take advantage of others (McHoskey, 2001), successfully extract resources from others (Campbell, Bush, Brunell, & Shelton, 2005), and commit crimes (Neumann & Hare, 2008).

To gain a better understanding of the Dark Triad, the relationship between the three subcomponents and other common personality traits has been examined. For example, Lee and Ashton (2005) mapped the Dark Triad constructs on to the Five Factor Model of Personality and other personality traits. They found that psychopathy and Machiavellianism were negatively correlated with agreeableness and that narcissism was positively correlated with extraversion. Further, all three Dark Triad constructs were positively correlated with lying. The Dark Triad also has been positively correlated with dominance and sadism (Bradlee & Emmons, 1992; Chabrol, van Leeuwen, Rodgers, & Séjourné, 2009). Understanding the Dark Triad personality constructs in reference to more common personality traits provides a deeper understanding of the Dark Triad of personality itself as well as the provides some context for the behaviour of Dark Triad individuals.

In addition to their relationship with negative personality traits, psychopathy and Machiavellianism, in particular, have been correlated with a low degree of self-control and a penchant for discounting future consequences. This is represented by the frequency

with which they act impulsively without regard for the victim or for the consequences of their behaviour (Jonason & Tost, 2010). Jonason, Li, Webster, and Schmitt (2009) sought to understand the Dark Triad lifestyle from an evolutionary perspective. The results of their study revealed that Dark Triad personalities are impulsive and prefer short-term over long-term gains. For example, they may employ a short-term mating strategy where they remain with sexual partners for a brief period before moving on, arguably enabling them to gain the maximum amount of resources from a partner without investing time or making an emotional commitment (Jonason & Kavanagh, 2010).

In addition to their inclination for short-term exploitative relationships, Dark Triad individuals are knowledgeable about a number of different tactics to manipulate and exploit others. For example, Jonason and Webster (2012) found that individuals who are characteristic of the Dark Triad are selfish, competitive, and strategic in their active strategies for manipulation. Specifically, they use social influence to manipulate and exploit others and are believed to have a number of unique exploitative tactics at their disposal. For example, high Dark Triad scores were related to using charm or “playing hardball” to manipulate others. Also, specific methods of influence were related to each of the three traits individually. Psychopathy was related to the use of charm and coercion, Machiavellianism was related to the use of charm and seduction, and narcissism was related to invoking feelings of responsibility in others. Further, this study found that each of the Dark Triad constructs were correlated with the use of the same types of influence tactics regardless of the target individual, suggesting that they do not tailor their method of manipulation to suit their target. Finally, it was reported that Machiavellians use the widest array of tactics of social influence of the three traits. This is likely because the trait

itself is defined as an individual who takes advantage of others, so they may be more skilled at different types of manipulation. This research suggests that individuals characteristic of the Dark Triad are skilled manipulators adept at implementing a variety of manipulation and exploitation tactics. Dark Triad individuals will use whatever means necessary to achieve their goal because they see others as pawns to be used to fulfill their needs (Jonason & Webster, 2012).

The interpersonal manipulation and exploitation of others by Dark Triad individuals most often manifests in two key areas: criminal aggression and corporate manipulation. High scores on measures of the Dark Triad have been associated with bullying as adults (Baughman, Dearing, Giammarco, & Vernon, 2012; Jonason et al., 2009) and other forms of aggression (Stickle, Kirkpatrick, & Brush, 2009). Just as there are psychopaths who climb the corporate ladder, there are individuals characteristic of the Dark Triad who use their manipulative strategies in the business world (Babiak & Hare, 2006; Furnham, Trickey, & Hyde, 2012). In a study examining the work place habits of Dark Triad individuals, Jonason et al. (2012) found that these individuals use various forms of manipulation at work. Specifically, psychopaths and Machiavellians use direct and hard manipulation such as the use of threats, whereas narcissists and some Machiavellians employ softer methods of exploitation such as using compliments to ingratiate themselves to their fellow employees and then asking for “favours.” The results of this study reveal that there may be some significant differences in the methods used by Machiavellians, narcissists, and psychopaths to exploit and manipulate others. The results of this study also support the belief that Dark Triad individuals are exploitative by nature, as they use a variety of manipulation and exploitation tactics in their social and sexual

lives as well as in the workplace. As it is known that Dark Triad individuals spend as little time as possible extracting the desired resources from victims, it would be adaptive for them to be able to detect vulnerability to victimization in others so that they could offend against those who are easily exploited.

The behaviour of Dark Triad individuals in the workplace has been studied in numerous other contexts and not surprisingly, Dark Triad individuals are considered to be toxic employees (O'Boyle et al., 2011). A meta-analysis ($N = 43,907$) of articles published about Dark Triad individuals in the workplace between 1951 and 2011 revealed that job performance was negatively related to Machiavellianism and psychopathy (O'Boyle et al., 2011). Not only do these individuals demonstrate poor job performance, the possession of all three Dark Triad traits in employees is moderately related to counter-productivity in the workplace (O'Boyle et al., 2011). In addition to this comprehensive review, individual studies have found that narcissists in positions of power often engage in unethical behaviour (Amernic & Craig, 2010; Khoo & Burch, 2008; Williams, Nathanson, & Paulhus, 2010), psychopaths are a detriment to a company's productivity and are poor at cooperation with colleagues (Galperin, Bennett, & Aquino, 2011), and Machiavellians are abusive and manipulative within the workplace (Kessler et al., 2010; Kiazad, Restubog, Zagenczyk, Kiewitz, & Tang, 2010) and have demonstrated a diminished organizational commitment and poor supervisory responsibility (Zettler, Friedrich, & Hilbig, 2011).

It may be difficult to comprehend why these socially aversive individuals would be hired in the first place, but it is likely because they are experts in impression management and self-monitoring (Paunonen, Lönnqvist, Verkasalo, Leikas, & Nissinen,

2006). Specifically, individuals who possess characteristics of the Dark Triad are believed to be initially charming, assertive, and exude leadership ability and during a typically short job interview, an interviewer will often not have the opportunity to observe any of their less desirable and problematic personality traits (Harms, Spain, & Hannah, 2011; Wilson, Near, & Miller, 1998).

Dark Triad scores are negatively correlated to global empathy. Some research suggests that Dark Triad individuals are able to read targets and then use their knowledge of those targets to strategize ways to manipulate and exploit the weaker individuals (Wai & Tiliopoulos, 2012). In addition to the lack of global empathy, individuals characteristic of the Dark Triad also have low affective empathy, enabling them to expertly manipulate and exploit others while not feeling empathy for their victims (Bushman & Baumeister, 1998; Wai & Tiliopoulos, 2012). These individuals may possess a heightened ability to select the most vulnerable target for their exploits, guiltlessly manipulate this victim and move on without any consideration for the harm that they caused.

1.3 Cues Used to Assess Personality Traits in Targets

Although some research has been conducted to identify the traits and emotions associated with vulnerability and victimization, little research has been done to elucidate the verbal and non-verbal cues that are associated with these specific personality attributes. The three major types of cues that may be used to detect the traits and emotions of targets are non-verbal information (which is further broken down into facial expressions and body language) and verbal information. These three main types of cues are discussed in greater detail in the following sections.

1.3.1 Facial Expressions

Upon meeting an individual for the first time, research has demonstrated that we almost instantly draw conclusions about their state and trait characteristics (e.g., Martelli et al., 2005; Willis & Todorov, 2006). These conclusions are thought to be largely based upon the target's facial features (Porter, Gustaw, & ten Brinke, 2010). Specifically, observers look to both targets' facial expressions as well as the structure of their face to infer an array of information including their emotional state, their degree of attractiveness, and whether or not they should be trusted, among other interpersonal characteristics (Abdel Rahman, 2011). The information gleaned from the strangers' face can directly effect subsequent interactions with them. For example, observers scrutinize the face to learn more about a person's age, gender, and race as well as his or her emotional state (Amado, Yildirim, & İyilikçi, 2011). The manner in which the observer behaves during an ensuing social interaction is at least partially a reflection of the way in which he or she perceived the target's face (see Black, Porter, Baker, & Korva, 2012).

Not only are most humans innately effective at communicating emotions using their face, they also are highly attuned at interpreting the facial expressions of others. There are a number of areas in the brain dedicated to the processing of facial features and expressions (e.g., the fusiform and the occipital facial areas), though there are many other parts of the brain involved in interpreting the wealth of information that the face provides (Fox, Hanif, Iaria, Duchaine, & Barton, 2011; Kanwisher, McDermott, & Chun, 1997). Within moments of viewing an unknown face, people form impressions about the state and trait characteristics of the stranger (Amihai et al., 2011; Arsalidou et al., 2011). Facial expressions are the direct physical representation of emotional experiences. These

expressions are formed using both voluntary and involuntary muscles in the eyes, forehead, nose region, mouth, and neck, and last on average for 1 to 5 s (Ekman, 1992). Although the muscles of the face can combine in any number of ways to make a multitude of facial expressions, there are six facial expressions that are said to be universal: happiness, sadness, anger, fear, surprise, and disgust (Ekman, Friesen, & Ellsworth, 1972).

A number of studies that have tested the role of the human face in detecting personality traits. For example, studies on altruism and commitment have demonstrated that non-verbal cues such as smile duration, smile symmetry, felt smiling, and concerned furrows, are good indicators of genuine concern (Brown, Palameta, & Moore, 2003). Moreover, altruistic individuals were rated as more expressive by perceivers. Understanding that facial expressions can be used to evaluate personality traits such as altruism and trustworthiness, it is possible that cues to vulnerability are also evident on the human face and that social predators use these cues to detect vulnerability. The current study will seek to determine whether individuals provide reliable facial cues to the personality traits and emotional states most commonly related to vulnerability to victimization.

1.3.2 Body Language

From the use of illustrators (hand movements to emphasize speech) to the changing of posture, non-verbal behaviour can potentially provide many clues to the psyche of an individual. For example, non-verbal behaviour has been used to detect deception in both high stakes and low stakes situations (ten Brinke & Porter, 2012). A meta-analysis by

DePaulo and colleagues in 2003 revealed that liars used fewer illustrators when speaking and tend to press their lips together more when compared to honest people. ten Brinke and Porter (2012) discovered that liars telling high stakes lies used more illustrators and averted their gaze less than genuine individuals.

Considering non-verbal cues to vulnerability, Murzynski and Degelman (1996) conducted the first study that established a causal relation between body language and vulnerability ratings to sexual assault. The variables they examined included stride length, shifting of weight, body-limb movement, and foot movement. They discovered that body language was a reliable predictor of sexual assault victimization. Further, Richards, Rollerson, and Phillips (1991) investigated the link between non-verbal behaviour and submissiveness. They found that women who scored high on their scale of submissiveness wore more concealing clothing and used less expansive non-verbal gestures than women who scored high on their dominance scale. Additionally, the male rater's of these videos chose the women who scored higher on scores of submissiveness more than the women who scored high on the scale of dominance when asked whom they would choose to exploit. These studies reveal that non-verbal behavior in general is a predictor of vulnerability, but they do not delineate the full spectrum of non-verbal behaviours that may provide clues to vulnerability. To remedy this lack of information, the current study will seek to better comprehend the range of non-verbal cues associated with vulnerability to victimization.

1.3.3 Linguistic Cues

Language is the most direct way for most humans to express their thoughts and emotions in a form that is understood by others. Spoken words are a reflection of what individuals think and feel, and frequently are used during social interactions (Tausczik & Pennebaker, 2010). Humans can provide overt explanations about opinions or how they are feeling by using words that directly reflect their current state (i.e., I am sad) (Pennebaker & Graybeal, 2001). They may also provide covert clues to their state and trait characteristics in the types of words that they choose to use (Oberlander & Gill, 2006). For example, Oberlander and Gill (2006) analyzed the language used in email communication and discovered a number of language trends related to personality traits. Specifically, extraversion was positively correlated with adjective use and neuroticism was negatively correlated with the use of adverbs. Researchers have begun to look to language to study the behaviour of individuals (e.g., detecting deception) and groups of people (e.g., categorizing personality types using language).

Language also has been used to identify a number of aversive groups including liars, offenders, and psychopaths. Vrij and Mann (2001) examined the language of murderers during police interviews and found that their speech contained more pauses and disfluencies, such as “umm” and “hmm.” This same pattern was found in a group of individuals who attempted to falsify the expression of remorse (ten Brinke, McDonald, Porter, & O’Connor, 2012). Further, verbal cues, such as a low word count, the use of first-person pronouns, and the use of terms describing senses, have been found to be indicative of deception in computer-mediated communication (Hancock, Curry, Goorha, & Woodworth, 2008). It appears that due to an increase in cognitive load during

deception, individuals are unable to fully monitor their language use and can provide cues to their deception (ten Brinke & Porter, 2012). Hancock, Woodworth, and Porter (2011, in press) examined the manner in which language patterns are related to individual psychological differences, such as psychopathy. The study analyzed and compared the language of offenders convicted of homicide who were either classified as psychopathic or not psychopathic. Their results showed that psychopaths displayed an increased use of the past tense, suggesting that psychopaths are emotionally more distant from their crime than non-psychopaths. Further, psychopaths used significantly more subjunctives and subordinating clauses (i.e., “as if” and “because”).

In addition to the use of language to detect an individual’s state emotional state, research has revealed that language can be used to detect an individual’s lasting traits. Analysis of the English language is becoming an increasingly popular tool in distinguishing between (and better understanding) personality types (Lee, Kim, Seo, & Chung, 2007). Hirsh and Peterson (2009) sought to differentiate between the Big 5 personality traits using cues from language from self-narratives, which is a short speech made by the participant about him- or herself. Results demonstrated that there were indeed language cues associated with the Big 5 personality traits. For example, extraverted individuals used more words related to humans and social processes, a reflection of their need for social interaction, and neurotic individuals used more negative emotion and anger words, which is a reflection of their negative perspective.

Based on the previous research that demonstrates that personality traits and emotional traits in general, and those associated with vulnerability (see Chapter 1.4 for a more in-depth discussion of traits characteristic of vulnerability) are distinguishable in

language, the language of vulnerable individuals should distinguishable from the language of those who are not vulnerable to exploitation. As the cues that predators use to detect vulnerability are unknown at this time, a goal of the current study is to determine whether vulnerable individuals reveal cues to their weakness to exploitation in their speech patterns and language choice.

While there are many cues available to help one assess the personality traits of a stranger, it appears as if some are more reliable than others. Vazire, Naumann, Rentfrow, and Gosling's (2008) participants reported using appearance-related cues such as make-up and the amount of cleavage visible when rating strangers on their degree of narcissism. In this particular study, these cues were accurate indicators of narcissism. However, other studies warn that participants rely too heavily on appearance when assessing the traits of targets and that this can hinder their degree of accuracy (Olivola & Todorov, 2010). The cues associated with accuracy of personality assessment are likely closely linked to the type of trait that observers are trying to assess. However, overreliance on one type of cue may interfere with the observers' ability to accurately assess a variety of personality traits. The current study would appear to be the first to specifically examine the types of cues that Dark Triad individuals use when assessing the personality traits of targets. Wheeler, Book, and Costello (2009) asked the participants in their study of vulnerability assessment to describe the cues that they used to come to their conclusions about vulnerability and the majority of their participants were not able to specify the cues they relied upon to make their decisions, instead they claimed that it was simply intuition. A main goal of the current study is to explore the types of cues that Dark Triad individuals report using to assess the personality and emotional traits of targets.

1.4 Accuracy for Assessing the Personality Traits of Targets in General

A number of studies have examined whether people are skilled at the interpersonal assessment of the Big 5 personality traits, which includes openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism (Carney et al., 2007; Naumann, Vazire, Rentfrow, & Gosling, 2009; Oltmanns & Turkheimer, 2009). The majority of studies report that extraversion is always the most accurately assessed of the traits, regardless of the presentation modality in which the targets are presented to the observers (e.g., photographs, thin-slices of video, short face-to-face interactions; Borkenau, Brecke, Möttig, & Paelecke, 2009; Carney et al., 2007; Hall, Andrzejewski, Murphy, Mast, & Feinstein, 2008). For example, Naumann et al. (2009) presented student observers with two full-body photographs of targets; one standing in a pose dictated by the researcher and the other in a pose chosen by the target. Upon comparing the observer's ratings of the traits to the self-reported scores provided by the targets in the images, the results revealed that, of the Big 5 traits, observers were only accurate at assessing extraversion. Following extraversion, observers are best able to assess the openness to new experiences trait (Carney et al., 2007).

The previous study revealed that people are able to discern specific personality traits from a very small amount of information (still photographs), but other research has shown that assessments become more accurate when people are presented with richer information (Ambady & Rosenthal, 1992; Borkenau & Liebler, 1992; Holtzman & Strube, 2010). For example, Oltmanns and Turkheimer (2009) used thin-slice videos of the targets to reveal that there was a high degree of target-observer agreement for extraversion, openness to new experiences, agreeableness, and conscientiousness.

Oltmanns, Friedman, Fiedler, and Turkheimer (2004) required blind observers to assess the Big 5 personality traits of individuals diagnosed with personality disorders. After viewing 30-s videos of a diagnostic interview involving the target, observers scored the Big 5 personality traits of each videotaped person. Observers were able to accurately rate those with paranoid, schizotypal, dependent, and avoidant personality disorders as lower on extraversion.

Some research has demonstrated that people also are able to accurately assess personality traits other than those included in the Big 5. Kilianski (2008) employed the use of short dyadic interactions between strangers to allow observers to assess the personality of targets. After a 10-min conversation, observers were asked to rate their partners on self-esteem and the Big 5 traits. Results revealed that observers were most accurate at assessing extraversion, followed by self-esteem. While much attention has been paid to the interpersonal assessment of personality traits in general, less focus has been placed on determining whether individuals can quickly and accurately assess the specific constellation of personality and emotional traits associated with specific personality types, such as those associated with vulnerability.

1.5 Personality Traits That are Predictive of Vulnerability

While it is human instinct to guard oneself from being exploited, some individuals fall victim to various types of manipulation (Cummins, 1999) from a variety of different people in their lives (Farrell, Phillips, & Pease, 1995), and on a relatively frequent basis. In 2009, almost 1.6 million people over the age of 15 years reported that they had been a victim of a violent crime (defined as either sexual assault, robbery, or physical assault) in

the last year (Statistics Canada, 2009). A growing line of research suggests that a portion of victims of these crimes may have been selected by human predators who purposefully targeted them because they demonstrated signs of vulnerability (e.g., Gunns, Johnston, & Hudson, 2002).

Vulnerability is defined as being susceptible to physical or emotional attack or harm (e.g., Hodges & Perry, 1999). Offenders often are attracted to a number of victim-centric traits that identify someone as vulnerable (Crick & Bigbee, 1998; Dodge, Bates, & Pettit, 1990; Stoody, 2000). The characteristics that often are associated with vulnerability to victimization include high depression and anxiety, low self-esteem, gullibility, naiveté, a willingness to trust others, a sense of inadequacy, and low assertiveness (D'Esposito, Blake, & Riccio, 2011; Hawker & Boulton, 2000; Hodges, Boivin, Vitaro, & Bukowski, 1999; Ladd & Kochenderfer Ladd, 2002; Richards et al., 1991; Rubin & Copeland, 2004). For example, Egan and Perry (1998) sought to delineate the personality traits of bullying victims. They collected data on personality traits and victimization in an elementary school in the fall and then again in the spring. The results of the study revealed that low self-esteem, low assertiveness, and increased depression and anxiety makes one more vulnerable to peer victimization. Interestingly, the study also found that being the victim of a crime could contribute to the manifestation of these traits, which in turn may lead to further victimization. The results of a similar prospective study by Hodges and Perry (1999) supported the earlier finding that individuals who had higher levels of depression and anxiety were more likely to be victimized, and also revealed that being disliked and being physically weaker were significantly related to being vulnerable to victimization (also see Card & Hodges, 2008).

It appears that these trends in victimization remain stable from childhood to adulthood. In a retrospective study of adult victims of interpersonal violence, high levels of depression and anxiety were related to victimization (Shorey et al., 2010). Further, research has revealed that when men approach a woman with the intention of engaging in something that is against the woman's will they purposefully seek out shy women with low self-esteem because they believe them to be more vulnerable (Gidycz, Coble, Latham, & Layman, 1993; Sakaguchi & Hasegawa, 2007). Sakaguchi and Hasegawa (2006) explored this phenomenon more closely by administering survey packets to female students at two Japanese universities inquiring about the frequency with which they are approached for sexual purposes by men. The results of this study reveal that women who are approached more often scored higher on the Sociosexual Orientation Inventory (SOI), a measure of one's tendency to engage in non-committal sexual relationships. In turn, SOI scores were negatively correlated with agreeableness and conscientiousness; traits that are thought to be characteristic of vulnerability.

It has been proposed that the above-mentioned specific personality traits and emotional states also are directly related to submissiveness and the inability to retaliate when wronged (Crawford & Manassis, 2011). For example, Boivin, Petitcherc, Feng, and Barker (2010) studied a group of children over 4 years and revealed that victimized children were more emotional, less aggressive, and more socially withdrawn. The personality traits of victims depict an individual with low self-esteem, self-confidence, and assertiveness. These traits are associated with meek and timid behaviour, and it is unlikely that individuals with these traits would retaliate against an abuser. Although there is a lack of research on the influence of victim retaliation in victim selection, the results

from the few studies that do exist suggest that the low likelihood of these victims retaliating may allow social predators to exploit these individuals with a minimal risk of consequences.

In addition to being vulnerable to initial victimization, individuals who have been victims of aggression are likely to be victimized again (Boivin et al., 2010; Buhs, Ladd, & Herald, 2006; Farrell et al., 1995). This is due to the psychological consequences of being victimized closely resembling the characteristics of vulnerability. For example, just as the sample in Egan and Perry's 1998 study were likely to be victimized due to high levels of depression and anxiety, Hawker and Boulton (2000) found that individuals who had been victimized also had elevated levels of depression and anxiety. Additionally, victims of crime often develop low self-esteem, withdraw from others socially, and become timid and submissive (Graham, Bellmore, & Mize, 2006; Olweus, 1993; Parkhurst & Asher, 1992; Strauss, Lahey, Frick, Frame, & Hynd, 1988) which may, in turn, lead to being targeted for victimization again (Boulton & Smith, 1994; Schwartz, Dodge, & Coie, 1993).

In summary, while there has yet to be a consensus on the exact characteristics of vulnerability, numerous studies have shown that individuals who are victimized most often share a common set of personality and emotional traits. They are often highly depressed and anxious, have low self-esteem and low assertiveness, and often are submissive and timid. Further, victims of crime may also subsequently develop this collection of psychological traits that make them more likely to be targeted and repeatedly victimized. Based on the above review, individuals with elevated levels of depression, anxiety, and interpersonal trust, and low levels of self-esteem and assertiveness were

considered to be vulnerable to victimization. With regard to the Big 5, individuals scoring low in openness to new experiences, extraversion, and conscientiousness and scoring high in agreeableness and neuroticism were considered to be vulnerable to victimization. To date, little research has been done to determine whether people are able to accurately assess these traits in others.

1.6 Accuracy for Assessing the Vulnerability of Targets

As people are able to accurately rate the Big 5 traits in general, the current study sought to investigate if individuals would be able to accurately assess the personality and emotional traits specifically associated with vulnerability. Studies have shown that people in general, and offenders in particular, agree on individuals they believe to be vulnerable to attack (Gunns et al., 2002) and that their assessments are directly linked to observable non-verbal behaviour. For example, Gunns et al. (2002) asked a student sample to watch thin slice videos of targets walking across a room and identify which were the most vulnerable to victimization. Participants consistently rated the same individuals as vulnerable and an analysis of their walking styles revealed that women with front/back weight shifts and a gestural walking style were susceptible to attack.

The Gunns et al. study was largely based on a study done by Grayson and Stein in 1981 that was the first to assess whether people can detect vulnerability in targets from non-verbal cues. Grayson and Stein (1981) presented their sample of offenders convicted of assault with a number of thin slice videos of women walking on a city sidewalk. Similar to the results found by Gunns and colleagues 20 years later, there was a strong agreement between the offenders as to who would be the most vulnerable to being

mugged. An analysis of the non-verbal behaviour of the targets revealed that those who were considered most vulnerable were more likely to move their body unilaterally (i.e., left arm and left leg swing in unison) and lift their feet while those perceived to be unsuitable as victims moved their body contra-laterally and swung their feet as they walked. Murzysnki and Degelman (1996) conducted this same study with police officers and students as participants and found similar results; participants rated women with the walking patterns identified as vulnerable in the Grayson and Stein study as less confident and more vulnerable to victimization. A more recent re-creation of the Grayson and Stein study revealed that male participants agreed upon whom they would choose as potential victims of sexual exploitation based on a similar set of non-verbal gait cues (Sakaguchi & Hasegawa, 2006).

The previous studies simply asked participants to identify who they believed to be the most vulnerable to attack, and not to assess the personality attributes of the targets. Richards et al. (1991) extended this line of research by asking participants to rate the target's level of submissiveness (a trait they believed to be closely to vulnerability) and also identify which women they would be most likely to approach if they had to make her do something that she did not want to do. Participants were shown audio/video clips (with and without sound) of a dominant and a submissive woman being interviewed about controversial topics to male university students who were then asked to rate the targets. Researchers collected measures of submissiveness from the targets in the videos prior to showing the clips to the participant, and for the first time conducted analyses to determine not only whether participants agreed upon who was most vulnerable, but also whether their ratings of submissiveness were in line with the self-reported ratings given by targets.

Accuracy testing revealed that participants were able to accurately identify the dominant and submissive women with and without audio cues, suggesting that they rely on non-verbal behaviour to come to their conclusions. A second part of the study had evaluators code the non-verbal behaviour of the women in the videos, as well as their appearance. The results showed that submissive women wore more body-concealing clothing (e.g., high necklines, long pants) and used fewer expansive limb movements (although the latter finding was not statistically significant).

The relationship between psychopaths, known to be predatory offenders, and detection of vulnerability to victimization in targets also has been examined. Wheeler et al. (2009) had male students view thin slice clips of both male and female targets walking in a hallway, and then identify which of the targets would be vulnerable to being mugged. Again accuracy scores could be determined based on the researchers' proxy measure of vulnerability, previous victimization. The results of the study revealed that men scoring high on the psychopathy scale were able to accurately identify targets that had previously been victimized. An analysis of the video clips themselves revealed that again vulnerability was associated with the non-verbal cues identified in the original Grayson and Stein study. This was study was the first to ask participants to identify the cues used to assess vulnerability. Participants in general were unable to articulate how they came to their conclusions, but psychopathic participants reported using fewer body language cues than non-psychopaths.

Psychopathy and the ability to detect vulnerability in targets also were examined in a more naturalistic manner. Book, Quinsey, and Langford (2007) presented offender and community participants with thin slice videos of targets interacting with a

confederate, and asked participants to assess the target's degree of assertiveness (their proxy measure of vulnerability for this study). Participants also were asked to identify and rank the intensity of the emotion on 20 still photographs of human faces. They found that participants scoring high on their measure of psychopathy were more accurate at assessing the target's degree of assertiveness (as indicated by the target's score on the self-reported Rathus Assertiveness Scale (RAS)). Further, psychopaths did not show a deficit in identifying the facial expressions of targets, and were in fact, more accurate than the non-psychopaths at rating the intensity of the emotions. Participants were not asked which cues they used to make their assessments.

Psychopathic traits also have been linked to enhanced memory for vulnerable individuals, presumably in order to facilitate future exploitation. Wilson, Demetriooff, and Porter (2008) have found that psychopaths are better able to remember the faces of sad, unsuccessful females (their proxy measure of vulnerability) than less vulnerable individuals. The researchers surmised that psychopaths had the same memory capacity as non-psychopaths (based on the total number of faces remembered) but that psychopathy may simply allocate their memory resources to individuals who are easily exploited. Similar research by Ragbeer and Burnette (2012) also provided support for the predatory memory hypothesis.

Certainly, psychopaths appear to have an ability to not only detect vulnerability in targets but also recall the faces of these easily victimized individuals. There also is some evidence that psychopaths may use their ability to identify vulnerable individuals to choose their victims. For example, psychopathic stalkers are likely to choose vulnerable victims (those with relationship problems and limited access to external resources) and

achieve some instrumental purpose by stalking (Storey, Hart, Meloy, & Reavis, 2009). Accurately perceiving the personality traits of targets is adaptive as it informs the way in which people interact with these individuals in social situations. For example, knowing that a friend is high in neuroticism may lead one to be less likely to broach topics that will cause the friend anxiety. Conversely, the knowledge that someone is low in assertiveness may lead a person to take advantage of and exploit him or her. Based on the research conducted to assess the ability of offenders to accurately determine the personality traits of targets related to vulnerability, it appears as if there are certain types of people who are more accurate at the interpersonal perception of vulnerability. Specifically, there is evidence that psychopaths are better at detecting vulnerability and this may extend to individuals with a similar personality traits and a shared penchant for manipulating and exploiting others – individual's characteristic of the Dark Triad.

1.7 Current Study

I have endeavored to uncover potential individual differences that may facilitate an identification of vulnerability. Although some preliminary research has demonstrated that non-verbal cues can be used to indicate whether someone is vulnerable to exploitation (e.g., Grayson & Stein, 1981; Richards et al., 1991; Sakaguchi & Hasegawa, 2007), it is currently unknown which non-verbal behaviors signal vulnerability to predators and whether verbal cues, such as the content of speech, provide information about one's degree of vulnerability. Due to the limited research on the combination of factors that contribute to vulnerability among victims of crime, the current study sought to examine cues to vulnerability through the use of language, facial expression, and other body language. To my knowledge this is the first investigation of language used to discern

vulnerability. Additionally, the precise non-verbal cues to vulnerability have yet to be fully investigated. Knowing which cues are the best predictors of vulnerability and victimization in crime could provide important information for the intervention techniques that may be most helpful for potential victims.

The current study expands on the previous literature by including both male and female targets, and male and female participants. Previous research has focused mostly on the ability of men to assess vulnerability in women, providing only a narrow view of interpersonal perception of vulnerability. The inclusion of both genders as targets and participants will allow for a broader understanding of interpersonal perception, and gender comparisons for both the manner in which they assess targets and their ability to do so accurately.

A goal of the current study also was to determine how individuals high in psychopathy and the other Dark Triad constructs make their assessments of targets. There has only been one study done to determine which cues participant observers use to come to their conclusions about an individual's degree of vulnerability. Wheeler and colleagues (2009) were the first, and only, researchers to ask participants to explain the cues that they used to assess vulnerability, and the related personality attributes. They found that their sample of psychopaths, although accurate at assessing vulnerability, were not able to explain how they made their decisions. A focus of the current study is on the cues used to inform the assessments of people in general and Dark Triad individuals.

Previous research (e.g., Book et al., 2007; Grayson & Stein, 1981; Wheeler et al., 2009) has shown that psychopaths use non-verbal cues, such as body language, to deduce

whether or not someone is vulnerable to victimization, although they are not able to expressly state that they use non-verbal cues. There has been no research conducted on the use of verbal cues to assess vulnerability and the corresponding personality and emotional traits. At this time it is unknown whether psychopaths use vocal cues or cues from the content of the speech itself to assess vulnerability. In relation to the manner in which psychopaths, and the other Dark Triad subcomponents, assess targets I hypothesized the following:

H1:(a) Participants in general will report using non-verbal cues as the primary cue used to assess vulnerability and its corresponding personality and emotional traits. All of the research concerning the assessment of vulnerability to date has used thin slices of video clips that often did not have sound, and participants were able to accurately identify vulnerability. Further, past research has demonstrated that while psychopaths are adept at identifying vulnerability in targets using video clips, when asked to explain the cues that they used to make their decisions they were unable to, and even reported using non-verbal cues less than non-psychopaths (Wheeler et al., 2009). Therefore, it is hypothesized that participants scoring high on measures of the Dark Triad and its subcomponents will report that the cue used most often to assess targets is intuition, or having a feeling that they were vulnerable. In addition, they are likely to report using fewer cues to come to their conclusions than non-psychopaths. (b) Individuals will be better able to assess another individual's personality traits and emotional states related to vulnerability from the audio/video clips. The audio/video clip modality is most closely related to the manner in which individuals assess targets in a real world setting (being able to both see and hear the target) so it is likely that they will be able to best identify vulnerability in this presentation

modality. Further, this manner of presentation offers participants the most and richest cues to their personality and emotional traits. Simply having more information about a target should enhance their ability to assess vulnerability and the corresponding personality and emotional traits.

The majority of vulnerability assessment research has simply determined that participants, both offender and community samples, agree on who they would choose to exploit. More recently, two studies have extended this research to include accuracy for victimization based on self-reported vulnerability from the targets themselves. However, these studies only examined vulnerability and one corresponding personality attribute (submissiveness and assertiveness, respectively). There are many personality and emotional traits that contribute to a target's degree of vulnerability, and simply using one personality attribute does not capture a participant's ability to fully evaluate vulnerability. In the current study, I endeavored to determine whether participants, particularly those scoring high on psychopathy and the other personality constructs that make up the Dark Triad, were able to accurately assess a variety of personality and emotional traits related to vulnerability.

Specific personality traits and emotional states are strongly associated with an individual's degree of vulnerability (Egan & Perry, 1998; Richards et al., 1991). As an example, low assertiveness and high depression may be used as cues to determine whether or not someone is vulnerable to exploitation. When attempting to discern whether or not an individual is vulnerable to exploitation, it would be beneficial for the exploiter to be able to accurately identify the personality traits and emotional states related to vulnerability. While some research has been conducted to determine how psychopathic

individuals target and exploit their victims, to date there has not been any research conducted to determine whether individuals who possess characteristics of the other two constructs that make up the Dark Triad (narcissism and Machiavellianism) are able to identify vulnerability in targets. As individuals with the Dark Triad are likely to exploit others to benefit themselves, it is important to understand whether these individuals are better able to target people who are vulnerable to exploitation. Based on the existing literature, the following hypothesis was proposed:

H2: (a) Previous research has revealed that psychopathic individuals have accurately assessed vulnerability in the past (Wheeler et al., 2009), so it is hypothesized that of the three Dark Triad traits, they will be best able to identify vulnerability in the targets. Although there is no evidence to date to suggest that the people high on the other two traits that make-up the Dark Triad also are skilled at detecting vulnerability in targets, I suspect that they also will be better than individuals who score low on measures of the Dark Triad. (b) Supported by previous research that has demonstrated that psychopaths are able to accurately identify some personality traits characteristic of vulnerability (e.g., submissiveness and assertiveness), it is hypothesized that individuals scoring high on measures of the Dark Triad also will be able to accurately identify the personality traits characteristic of vulnerability in the current study. (c) Based on the wealth of literature that has shown that psychopaths, Machiavellians, and narcissists all possess a deficit in the ability to recognize emotion in targets, it is hypothesized that they will be less accurate at identifying the emotional traits characteristic of vulnerability in the current study.

2. Methods

2.1 Participants

The participants were 101 undergraduate students, 31 men ($M = 19.3$ years, $SD = 1.93$) and 70 women ($M = 19.23$ years, $SD = 1.43$) from the University of British Columbia Okanagan campus. Caucasian students made up 66.3% of the sample, 19.8% of the sample was Asian, 1% identified as Aboriginal, and 12.9% of the sample identified as an “other” race. In relation to the participant’s level of education, 79.2% of participants were in their first or second year of school, 19.8% were in their third or fourth year, and only 1% were enrolled in a fifth year. Participants were also asked to report the number of psychology courses that they had completed and the large majority of participants (78.2%) had only completed one to three psychology courses, 13.9% had completed four to nine courses, and 8% had completed ten or more psychology courses. Students participated in the study in return for course credit.

2.2 Materials

2.2.1 Videos

Fifteen clips were used as the stimuli for the main study. Each clip was separated into four distinctive parts including an audio-video clip, only the video portion, only the audio portion, and a written version (transcript) (creating 60 possible clips). This parsing apart of the video clips was done to create the four modality types required for the current study. An analysis of the 15 clips used was conducted to ensure that there were indeed differences in the observable verbal and non-verbal cues within and between personality

traits. (See Appendix 1 for details.) The results of the preliminary analysis justified the use of the videos in the current study.

2.2.2 Self-Report Psychopathy Scale-III (SRP-III)

The SRP-III is a 64-item self-report questionnaire that taps into the four facets of psychopathy that comprise the PCL-R (callous affect, criminal tendencies, erratic lifestyle, and interpersonal manipulation) (Paulhus, Neumann, & Hare, in press; Williams, Paulhus, & Hare, 2007). The SRP-III employs a 5-point Likert-type scale (from *strongly disagree* to *strongly agree*); scores are added (after reverse scoring the designated items; Paulhus et al., in press). Scores for the 16 items in each subscale are then averaged to get a mean. The mean of the four subscales then serves as the SRP-III total score. This score is out of 5, with 5 being the highest possible score and 1 being the lowest possible score.

Self-report measures of psychopathy have been deemed reliable in a research setting (Miller, Jones, & Lynam, 2011). Jones and Miller (2012) found that self-report measures of psychopathy, similar to the PCL-R, correlated significantly with externalizing behaviors such as anti-social behaviour and substance abuse. The SRP-III, created for use with community samples (as opposed to offender samples), has been shown to have good convergent and discriminate validity (Forth, Brown, Hart, & Hare, 1996; Paulhus et al., in press; Williams & Paulhus, 2004). It has also been found to have a four-factor structure similar to the PCL-R (Mahmut, Menictas, Stevenson, & Homewood, 2011). The SRP-III is believed to capture the essential features of psychopathy (Lester, Salekin, & Sellbom, in press).

2.2.3 MACH-IV

The MACH-IV is a 20-item questionnaire that uses a 7-point Likert-type scale (from *strongly disagree* to *strongly agree*) to assess characteristics of Machiavellianism (Christie & Geis, 1970). The scores for the Machiavellian-based questions are added, and the scores on the non-Machiavellian-based questions are reverse scored and then added to the total. Christie and Geis (1970) recommend adding 20 points to each total score for a maximum possible score of 160 and a minimum score of 40. The MACH-IV assesses Machiavellian traits such as self-interest, use of deception, and manipulation (Paulhus & Williams, 2002). The MACH-IV is a reliable and valid scale that accurately reflects Machiavellianism (Jones & Paulhus, 2009; Ramanaiah, Byravan, & Detwiler, 1994).

2.2.4 Narcissistic Personality Inventory (NPI)

The NPI is a 40-item forced choice questionnaire that assesses characteristics of narcissism, such as grandiosity, entitlement, dominance, and superiority (Raskin & Hall, 1979; Raskin & Terry, 1988). One point is given for each narcissistic statement, for a maximum score of 40. The higher the score on the NPI, the more narcissistic the individual is considered to be. Today the NPI is the most widely utilized measure of narcissism (Ackerman et al., 2011).

2.2.5 Emotional and Personality Traits Evaluation Questionnaire

This questionnaire was created specifically for use in the current study. The questionnaire was comprised of ratings (out of 5) for the personality traits (assertiveness, self-esteem, interpersonal trust, extraversion, openness to new experiences, conscientiousness, agreeableness, and neuroticism) as well as the emotional traits (anxiety and depression).

In addition to scoring the personality and emotional traits, the questionnaire includes questions about the individual in the clip's vulnerability to being exploited as well as open-ended questions that require the participant to describe what cues he/she used to determine the personality and emotional traits of the individuals in the videos, as well as what cues they used to determine vulnerability. The participants completed an Emotional and Personality Traits Evaluation Questionnaire about the individual in the clip after each of the eight clips.

2.3 Procedure

Individuals were greeted by the researcher and were given all study materials in the approved space where the study took place. The researcher explained the informed consent form orally and then the participants had the opportunity to ask any questions that they had prior to signing the form. Participants were asked to watch/listen/and read 8 of the possible 60 clips (although observers were never presented with the same target twice). They were exposed to all four of the methods of presentation, so that each participant watched two video clips that had sound, watched two video clips without sound, listened to two audio clips, and read two transcripts. The personality and emotional traits that the participants were asked to assess are a direct reflection of the personality trait measures that the participants from the preliminary examination completed about themselves prior to being filmed. After completing the clip/personality rating portion of the task, participants were asked to fill out a number of personality trait measures reflecting their own personality traits, including the MACH-IV (a measure of Machiavellianism), the SRP-III (a measure of psychopathy), and the NPI (a measure of narcissism). These three measures were chosen to assess the characteristics of the Dark

Triad. Participants also completed a demographics form that included questions about the participant's gender, age, year in school as well as the number of psychology courses completed.

2.4 General Data Cleaning

Prior to performing any analyses, the data were cleaned according to procedures described in Tabachnick and Fidell (2001). Several variables were missing data, but since few data points were missing and they appeared to be missing at random (i.e., a participant accidentally skipped an item), I replaced the missing data rather than deleting cases when possible. Tabachnick and Fidell (2001) state that if fewer than three data points are missing at random then most data replacement techniques will produce the same result; thus, different techniques of individual mean-based replacement were used for different data points. There were three participants for whom too much data was missing and they were removed from the data set. After dealing with missing data, the dataset was examined for normality and outliers. The SRP-III total score was negatively skewed, and was subjected to a square root transformation.

Following transformation, this variable met the assumptions of normality according to the Shapiro-Wilk W test ($p > .05$). The NPI was positively skewed and also subjected to a square root transformation. Following transformation, this variable met the assumptions of normality according to the Shapiro-Wilk W test. The MACH-IV, although normally distributed, was also subjected to a square root transformation to standardize the measures to ensure that the three scales could be compared to one another without issue. The square root transforms of the three scales were used in all analyses, but analyses were

conducted with the original variables as well, and results did not change (i.e., values changed slightly, but significance did not change).

3. Results

The three personality measures (NPI, MACH-IV, and the SRP-III) were scored individually according to their respective scoring requirements before being standardized using z scores and averaged to create an overall *Dark Triad score*. The relationship between these three personality constructs was assessed using correlations and results showed that the three were significantly correlated at .38, .69, and .52 ($ps < .05$); however, the highest correlation was only .69 so it is safe to assume that while these constructs are related they are distinct constructs that measure different aspects of personality (Jonason et al., 2010; Paulhus & Williams, 2002).

3.1 Preliminary Statistics

3.1.1 Dark Triad Scales

All participants completed the SRP-III, NPI, and MACH-IV. Reliability of the scales was 0.93, 0.83, and 0.82 (Cronbach's alpha) respectively (a further breakdown of reliabilities is provided in Table 3.1). As reliabilities were above the commonly used acceptable cutoff of 0.70 (Nunnally & Bernstein, 1994), all scales were used as variables in further analyses.

The mean score on the SRP-III for the overall sample was 2.15 ($SD = 0.50$), with total scores ranging from 1.13 to 3.64. The mean score on the NPI for the overall sample was 14.64 ($SD = 6.30$), with total scores ranging from 3 to 35. The mean score on the MACH-IV for the overall sample was 48.33 ($SD = 16.24$), with total scores ranging from 12 to 88.

Table 3.1*Alpha Reliabilities for SRP-III Total, NPI Total, and MACH-IV Total Scores*

Sample	SRP-III	NPI	MACH-IV
Overall	0.93	0.83	0.82
Male participants	0.94	0.85	0.86
Female participants	0.90	0.79	0.80

SRP-III = Self-Report Psychopathy Scale, NPI = Narcissistic Personality Inventory, MACH-IV = Machiavellian Scale

The mean score on the Dark Triad composite score for the overall sample was 0 ($SD = 0.83$), with total scores ranging from -.160 to 2.64. Mean overall scores for the scales and scores broken down by gender are shown in Table 3.2. Personality measure scores were examined to determine whether there were any significant differences between male and female participants. Independent-sample t tests showed that males scored significantly higher than females on the SRP-III total score, $t(101) = 4.91, p < .001$. The difference between males and female NPI total scores was approaching significance, $t(101) = 1.94, p = .05$, and was not significant between male and female MACH-IV total scores, $t(101) = 1.76, p = .08$. Males and females scored significantly different on Dark Triad total scores, $t(101) = 3.43, p = .001$.

Table 3.2

Means, Standard Deviations, and Ranges for SRP-III, NPI, MACH-IV, and Dark Triad Total Scores for the Overall Sample, Males, and Females

Sample	SRP-III	NPI	MACH-IV	Dark Triad
Overall <i>M (SD)</i>	2.15 (0.50)	14.64 (6.30)	48.33 (16.24)	0 (0.83)
Range	1.13-3.64	3-55	12-88	-1.60-3.64
Males <i>M (SD)</i>	2.48 (0.57)	16.45 (7.11)	52.55 (18.10)	0.40 (0.95)
Range	1.53-3.64	5-35	12-83	-1.42-2.64
Females <i>M (SD)</i>	2.01 (0.38)	13.84 (5.78)	46.46 (15.11)	-.18 (0.70)
Range	1.13-3.17	3-30	15-88	-1.60-1.82

SRP-III = Self-Report Psychopathy Scale, NPI = Narcissistic Personality Inventory, MACH-IV = Machiavellian Scale, Dark Triad = Dark Triad Composite Score (*z*-score).

3.1.2 Key Variables

Correlations between the Dark Triad composite scores, the three scales that make up the Dark Triad composite score, and the demographic variables were examined. Significant results are presented in Table 3.3 (demographic variables with no relationship to SRP-III, NPI, MACH-IV, or Dark Triad scores are not included). As expected, the three scales that make up the Dark Triad were highly correlated with one another and the Dark Triad composite score. In terms of demographic variables, being male was significantly related to higher SRP-III total scores, NPI Total scores, and Dark Triad scores, but not with MACH-IV scores. As well, age was significantly related to the personality traits scales. Specifically, being older was moderately correlated with SRP-III total scores and Dark Triad composite scores, but not NPI and MACH-IV total scores. No significant

relationships were found between the personality trait scales, including the Dark Triad composite score, and level of education and number of psychology courses taken.

Table 3.3
Pearson Bivariate Correlations Between Primary Study Variables

	1	2	3	4	5	6
1. SRP-III	1	.521**	.686**	.890**	-.442**	.196*
2. NPI		1	.367**	.761**	-.192*	.186
3. MACH-IV			1	.828**	-.174	.181
4. Dark Triad Total				1	-.326**	.227*
5. Gender					1	-.021
6. Age						1

SRP-III = Self-Report Psychopathy Scale, NPI = Narcissistic Personality Inventory, MACH-IV = Machiavellian Scale, Dark Triad = Dark Triad Composite Score (zscore).

*significant at the $p = .05$ level; ** significant at the $p = .001$ level

3.2 The Relation Between Dark Triad and Interpersonal Perceptions of Vulnerability in Targets

3.2.1 Cues Used

Included in the Emotional and Personality Traits Evaluation Questionnaire were three open-ended questions, the first being “Please describe in detail the cues that you used to determine the individual’s personality traits,” the second being “Please describe in detail the cues that you used to determine the individual’s emotional traits,” and the third being “Please describe in detail the cues that you used to determine whether the individual is

vulnerable.” Each participant was asked to answer these three questions after being presented with each of the eight clips, for a total of 24 open-ended questions. Analyses were conducted on the first cue reported by each participant, as it was deemed most salient. This provides a more in-depth understanding of the way in which participants came to conclusions about the traits of the targets. See Table 3.4 for means, standard deviations, and ranges. Participants reported using, on average, 38.67 ($SD = 7.59$) cues across the 24 open-ended questions, and reported using a mean of 1.61 ($SD = 0.32$) cues for each open-ended question. That is, each time they were asked to provide the cues used to assess the traits of targets, they provided 1.61 cues on average. When analyzed individually, participants reported using 1.82 cues ($SD = 0.39$) when assessing personality traits, 1.72 cues ($SD = 0.40$) when assessing emotional traits, and 1.29 cues ($SD = 0.33$) when assessing vulnerability.

Table 3.4

Means, Standard Deviations, and Ranges for the Average Number of Cues Used to Assess Vulnerability in Targets

	Mean (SD)	Range
Total	1.61 (0.32)	1.04-2.79
Personality Traits	1.83 (0.39)	1.00-2.75
Emotional Traits	1.72 (0.40)	1.00-3.38
Vulnerability	1.29 (0.33)	0.63-2.25

A series of independent t tests were conducted to determine whether there were gender differences in the number of cues reported. It was found that females reported using more cues on average per question, $t(98) = -1.99, p = .05, r = .20$. Females also reported using more cues per question to assess personality traits, $t(98) = -2.04, p = .04, r = .21$, and emotional traits, $t(98) = -2.31, p = .02, r = .24$. There were no significant differences by gender in reporting the number of cues used to assess vulnerability ($p = .63$).

Analysis of cues used also was broken down by the types of cues that participants employed when making their decisions about the personality and emotional traits of targets. A coding system was created after analyzing 10 (10%) participant answer booklets (containing all eight of the participant's Emotional and Personality Traits Evaluation Questionnaire). A total of seven possible cue categories were created to account for all of the types of cues reported, six specific categories and the seventh an "other" category that often included cues such as "what the person was wearing." The six categories created include vocal tone (the way in which the person spoke including pitch and volume), verbal cues (what the person said, the words used to describe themselves), body language (posture, bodily movement throughout the clip), gaze (where the target was looking, gaze change throughout the clip), facial expressions (smiling, or specific emotions reported), and intuition (how the person seemed, or the participants' instinct). Verbal cues was the category reported most often as the first cues that participants used across all three questions ($M = 7.70, SD = 3.92$); this was followed closely by intuition ($M = 6.76, SD = 5.08$).

In addition to the general cue categories used, the specific cues reported when assessing vulnerability also were examined. Results revealed that participants reported using intuition to assess vulnerability more than all of the other cue categories ($M = 3.68$, $SD = 2.30$). This was followed by the verbal cues category ($M = 1.85$, $SD = 1.53$).

3.2.2 Dark Triad and Cues Used

Dark Triad composite scores, NPI, SRP, and MACH-IV scores were each correlated with both the number of and type of cues used to assess vulnerability in targets. Dark Triad scores were negatively correlated with the number of cues reported ($r = -.20$, $p = .05$); that is, high Dark Triad scores were correlated with fewer cues used across the three open-ended questions. Dark Triad scores also were approaching significance for a negative correlation with the number of cues used when assessing emotional traits in particular ($r = -.19$, $p = .06$). As for the individual subcomponents of the Dark Triad, SRP and MACH-IV scores also were negatively correlated with total number of cues used across all questions (SRP: $r = -.22$, $p = .03$; MACH-IV: $r = -.22$, $p = .03$) and with the number of cues used when assessing the emotional traits of the targets (SRP: $r = -.23$, $p = .02$; MACH-IV: $r = -.22$, $p = .03$).

Analyses conducted to determine the specific types of cues used by individuals characteristic of the Dark Triad only revealed one significant result; individuals scoring high on the MACH-IV were less likely to report using facial expressions to assess targets ($r = -.19$, $p = .05$). Finally, there was a negative trend that approached significance between Dark Triad scores and reporting the use of facial expressions as the primary cue used to assess targets ($r = .18$, $p = .06$). There also were no significant relationships between Dark Triad scores and the cues used when assessing vulnerability specifically.

The specific cues used reported by those characteristic of the Dark Triad were examined using the same seven cue categories. Results revealed that for assessing personality and emotional traits and vulnerability, those scoring high in the Dark Triad reported using verbal cues most ($M = 7.32$, $SD = 4.23$) followed by intuition ($M = 6.98$, $SD = 5.21$). In addition to the general cue categories used, the specific cues that those high in the Dark Triad reported using to assess vulnerability also were examined. Results revealed that similar to the general participants, Dark Triad individuals reported using intuition to assess vulnerability more than all of the other cue categories ($M = 3.70$, $SD = 2.37$). This was followed by the verbal cues category ($M = 1.80$, $SD = 1.71$).

3.2.3 Dark Triad and General Perception of Targets

To assess the Dark Triad's perception of targets in general, the Dark Triad composite score and the three individual personality measures were correlated with the original scores given for each personality and emotional trait assessed. Results revealed that Dark Triad scores were negatively correlated with scores given for agreeableness ($r = -.21$, $p = .04$) and self-esteem ($r = -.31$, $p = .01$), and positively correlated with scores given for neuroticism ($r = .30$, $p = .003$), anxiety ($r = .29$, $p = .004$), and depression ($r = .32$, $p = .001$). That is, individuals scoring higher on measures of the Dark Triad perceive targets as being difficult and having low self-esteem as well as being highly neurotic, anxious, and depressed.

When each of the subcomponents of the Dark Triad was analyzed individually, it was revealed that NPI scores were negatively correlated with scores given for openness to new experiences ($r = -.23$, $p = .02$), conscientiousness ($r = -.21$, $p = .03$), and extraversion ($r = -.28$, $p = .02$) but positively correlated with scores given for depression ($r = .22$, $p =$

.03). That is, narcissism was correlated with perceiving targets as boring, irresponsible, introverted, and depressed. SRP scores were negatively correlated with scores given for agreeableness ($r = -.20, p = .05$) but positively correlated with scores given for neuroticism ($r = .29, p = .003$), anxiety ($r = .26, p = .01$), and depression ($r = .33, p = .001$). This suggests that psychopathic individuals perceive targets as less agreeable, neurotic, anxious, and depressed. MACH-IV scores were positively correlated with scores given for neuroticism ($r = .25, p = .01$), anxiety ($r = .27, p = .01$), and depression ($r = .23, p = .02$). Finally, this suggested that Machiavellians generally perceive targets as more neurotic, anxious, and depressed. All other relationships were non-significant ($ps > .05$).

The relationship between item 58 from the SRP (“A lot of people are suckers and can easily be fooled”) and general attitudes towards targets was analyzed as well. This particular item was chosen as it best represents having a negative attitude towards targets in general. Scores on this item were correlated with the original scores assigned to each target for each personality and emotional trait. The results show that higher scores on item number 58 of the SRP are positively correlated with scores given for neuroticism ($r = .24, p = .02$), anxiety ($r = .33, p = .001$), and depression ($r = .25, p = .01$) regardless of accuracy. Individuals who agreed with item 58 on the SRP perceived targets to be neurotic, anxious, and depressed. All other analyses were non-significant ($ps > .05$).

3.3 The Relation Between Dark Triad and Accuracy of Interpersonal Perceptions of Vulnerability in Targets

3.3.1 Personality Trait Judgment Accuracy

The relationship between the Dark Triad and its corresponding subcomponents and judgment accuracy for personality traits was examined using correlation and regression.

Prior to analysis, accuracy scores were calculated for each participant by correlating self-reported levels of each of the 14 personality traits with target-rated levels of the same traits. These correlations were then aggregated across each trait, so that each observer had 14 trait accuracy scores. Overall accuracy was determined by calculating the mean of all trait accuracy scores for each observer. Accuracy scores also were calculated separately for male and female targets. After accuracy scores were calculated, they were transformed from correlations to z scores using Fisher's r to z formula. This formula has been used to convert correlational accuracy scores in previous personality judgment studies (e.g., Beer & Watson, 2010; Vazire, 2010), as z scores are easier to interpret, and tend to meet the assumptions of normality required for correlational analyses better than correlation coefficients. Final accuracy scores used in analyses were the z transformed scores.

3.3.2 Overall and Individual Trait Accuracy

The means and standard deviations of both overall accuracy and individual trait accuracy can be found in Table 3.5. Overall trait accuracy is the mean of all of the participants overall judgment accuracies. Similarly, each individual trait accuracy score is the mean of each of the respective individual trait accuracies. Participants were most accurate at assessing extraversion ($M = .19$, $SD = .33$) and least accurate at assessing self-esteem ($M = -.31$, $SD = .35$). Independent-sample t tests were calculated to compare male and female accuracy for both the overall accuracy rate and accuracy for each individual trait. The results of these tests revealed that there were no gender differences for overall accuracy nor were there gender differences for accuracy of the 10 personality and emotional traits related to vulnerability (all $ps > .05$).

Table 3.5*Means, Standard Deviations, and Ranges for Overall and Individual Trait Accuracy*

	Mean (SD)	Range
Assertiveness	.00 (.35)	-.79-.75
Self-Esteem	-.31 (.35)	-.86-.59
Interpersonal Trust	-.01 (.35)	-.65-.84
Anxiety	-.30 (.31)	-.79-.57
Depression	-.04 (.36)	-.87-.81
Openness to new experiences	.07 (.29)	-.54-.72
Extraversion	.19 (.33)	-.64-.86
Neuroticism	-.01 (.40)	-.85-.86
Conscientiousness	.04 (.37)	-.77-.71
Agreeableness	.09 (.39)	-.85-.83
Overall	-.03 (.15)	-.38-.35

3.3.3 Dark Triad and Overall Accuracy

The relationship between the Dark Triad and overall judgment accuracy was examined by correlating the Dark Triad composite score with overall judgment accuracy. The results revealed that there was no significant relationship between Dark Triad scores and overall judgment accuracy ($p > .05$). Following the Dark Triad analysis, each of the three personality constructs that make up the Dark Triad was correlated with overall judgment

accuracy. Results revealed that psychopathy, narcissism, and Machiavellian traits were not significantly correlated to overall judgment accuracy (all $ps > .05$).

3.3.4 Dark Triad and Individual Trait Accuracy

The relationship between the Dark Triad and accuracy for identifying personality traits was examined by correlating the Dark Triad composite score and the eight personality trait scores used in the current study. One significant relationship was found between Dark Triad scores and decreased judgment accuracy for agreeableness ($r = -0.24, p = .02$). The relationships between the three Dark Triad traits and individual trait accuracy were examined as well; SRP-III scores, NPI scores, and MACH-IV scores were correlated with individual personality trait accuracy scores. For psychopathy, only one significant relationship was found; higher scores on the SRP-III were related to decreased judgment accuracy for agreeableness ($r = -.23, p = .02$). A similar relationship was found between NPI scores and agreeableness ($r = -.23, p = .02$). There were no significant relationships found between Machiavellianism and individual personality trait accuracy.

The relationship between the Dark Triad and individual emotional state accuracy was examined as well. This was achieved by correlating Dark Triad composite scores with accuracy scores for anxiety and depression. There was no significant relationship between Dark Triad scores and the ability to accurately assess emotional states in targets. The same analyses were conducted between SRP-III, NPI, and MACH-IV scores and emotional state accuracy. Again, no significant relationships were found (all $ps > .05$).

The relationships between SRP-III, NPI, and agreeableness judgment accuracy were further examined through regression. Analyses showed that both SRP-III ($B = -.23, p = .02$) and NPI ($B = -.23, p = .02$) were significant independent predictors of

agreeableness judgment accuracy. However, when both variables were included in the model, they both became non-significant (SRP-III $B = -.15, p = .17$; NPI $B = -.15, p = .18$).

3.3.5 Accuracy by Gender of Observer and Dark Triad

The relationship between Dark Triad scores and judgment accuracy by gender of observer was examined by correlating Dark Triad composite scores with overall and trait accuracy score for male and female observers separately. There were no significant relationships between Dark Triad scores and overall accuracy for male or female observers (both $ps > .05$). The relationships between psychopathy, narcissism, and Machiavellianism for gender and overall accuracy were also non-significant ($ps > .05$).

Individual personality trait accuracy for gender by each of the subcomponents of the Dark Triad was analyzed. Results revealed that for male observers Dark Triad composite scores were related to a decreased ability to accurately rate trustiness ($r = -.46, p = .01$) and an increased ability to accurately rate openness ($r = .47, p = .01$). The relationships between each of the three Dark Triad subcomponents and individual trait accuracy for males only were also examined. SRP-III scores were related to decreased judgment accuracy for trustiness ($r = -.46, p = .01$), but moderately increased accuracy for openness ($r = .37, p = .04$) and extraversion ($r = .36, p = .05$). NPI scores were related to decreased accuracy for trustiness ($r = -.04, p = .03$) and increased accuracy for openness ($r = .47, p = .01$). Similarly, high scores on the MACH-IV were correlated with decreased accuracy for trustiness ($r = .36, p = .05$) and increased accuracy for openness ($r = .38, p = .04$).

For female observers, Dark Triad was significantly related to decreased judgment accuracy for agreeableness ($r = -.27, p = .03$) and neuroticism ($r = -.28, p = .02$). In relation to the three individual Dark Triad subcomponents and personality trait judgment accuracy, the SRP-III was associated with decreased accuracy for neuroticism ($r = -.25, p = .04$), the NPI was associated with decreased accuracy for agreeableness ($r = -.25, p = .03$), and neuroticism ($r = -.25, p = .04$). There were no significant relationships found for MACH-IV scores and trait accuracy. There also were no significant relationships found for any of the Dark Triad subcomponent scores and emotional trait accuracy for either gender.

Regression analyses to further examine the relationship between the three Dark Triad traits and judgment accuracy for trustingness showed that for male observers, all three Dark Triad traits were significant predictors of judgment accuracy (SRP-III $B = -.97, p = .01$; NPI $B = -.17, p = .03$; MACH-IV $B = -.10, p = .05$). However, when all three variables were entered into the equation, the results became non-significant (SRP-III $B = -.72, p = .22$; NPI $B = -.09, p = .28$; MACH-IV $B = -.002, p = .98$). The relationship between the three Dark Triad traits and judgment accuracy for openness was also examined using regression. Again, the results showed that each of the three traits significantly predicted judgment accuracy for openness (SRP $B = .37, p = .04$; NPI $B = .47, p = .01$; MACH-IV $B = .38, p = .04$), but that they became non-significant when all three were put in the equation (SRP $B = -.006, p = .98$; NPI $B = .38, p = .06$; MACH-IV $B = .23, p = .38$).

The relationship between Dark Triad constructs and judgment accuracy for neuroticism for females was further examined using regression analyses. Psychopathy and

narcissism were significant predictors of accuracy (SRP $B = -.25, p = .04$; NPI $B = -.25, p = .04$), but both became non-significant once entered into the regression model (SRP $B = -.17, p = .19$; NPI $B = -.18, p = .17$).

3.3.6 Dark Triad and Modality

Due to the way in which the data for this study were collected, assessment accuracy for modality was analyzed using a series of 2 (Dark Triad score: high and low) \times 4 (modality: audio/video, audio only, video only, and transcript) within-subjects ANOVAs. First, Dark Triad scores were divided into two groups (high Dark Triad and low Dark Triad) using a median split. Difference scores were then calculated for each assessed trait by subtracting the scores given by the observer for a particular trait from the self-reported score given by the target for the same trait within each of the four modalities. Larger difference scores represent a large incongruence (less accuracy) between the observer's score and the self-reported score given by the target, and smaller difference scores represent a smaller incongruence (more accuracy) between the observer's score and the self-reported score given by the target. Means and standard deviations for difference scores for each trait across modality can be found in Table 3.6.

There were no significant interactions found between Dark Triad scores and modalities across all 10 traits assessed (nor was there for significance for any of the relationships between each of the three subcomponents of the Dark Triad and the traits across modality) (all $ps > .05$). However, there were a number of main effects of modality found within the traits. There was a main effect of modality for self-esteem, $F(1, 3) = 6.67, p = .005, \eta^2 = .06$. Post-hoc tests revealed that participants were more accurate at assessing self-esteem after viewing video clips than audio/video clips ($p = .001$), audio

clips ($p = .01$), and transcripts ($p < .001$). There was a main effect of modality for depression, $F(1, 3) = 12.44$, $p < .001$, $\eta^2 = .29$. Post-hoc tests revealed that participants were more accurate at assessing depression when viewing video clips than audio/video clips ($p = .03$), and that participants were significantly worse at assessing depression from transcripts than from audio/video clips, video clips, and audio clips (all $ps < .001$). There also was a main effect of modality for assessment of anxiety, $F(1, 3) = 4.56$, $p = .004$, $\eta^2 = .04$. Post-hoc tests revealed that again participants were significantly worse at assessing emotional traits from transcripts than from audio/video clips ($p = .02$), video clips ($p = .03$), and audio clips ($p = .001$).

A main effect of modality also was found for two of the Big 5 personality traits: openness to new experiences, $F(1, 3) = 3.78$, $p = .01$, $\eta^2 = .04$, and conscientiousness, $F(1, 3) = 5.26$, $p = .001$, $\eta^2 = .05$. Post-hoc tests conducted on the openness to new experiences analysis revealed that participants were significantly better at assessing openness after being presented with video clips than all other presentation modalities— audio/video ($p = .003$), audio ($p = .005$), and transcripts ($p = .05$). Finally, post-hoc tests for the conscientiousness analysis showed that participants were significantly worse at judging accuracy when using transcripts than audio/video clips ($p = .007$), video clips ($p = .002$), and audio clips ($p = .001$). Any significant main effects of Dark Triad were disregarded in favor of using the more accurate correlational method of analysis previously discussed.

Table 3.6

Means and Standard Deviations of Difference Scores for Target/Observer Agreement Across Modalities

	Modality			
	Audio/Video	Audio	Video	Transcripts
Assertiveness <i>M (SD)</i>	2.41 (1.12)	2.63 (1.09)	2.36 (1.67)	2.33 (1.08)
Self-Esteem	3.11 (1.28)	2.93 (1.23)	2.48 (1.22)	3.26 (1.39)
Depression	2.75 (1.63)	2.64 (1.39)	2.43 (1.41)	3.37 (1.58)
Anxiousness	4.08 (1.74)	3.76 (1.57)	4.02 (1.57)	4.59 (1.96)
Interpersonal Trust	1.75 (0.85)	1.67 (0.77)	1.66 (0.75)	1.67 (0.87)
Openness to new experiences	2.31 (1.02)	2.23 (1.03)	1.85 (0.97)	2.15 (1.02)
Extraversion	2.21 (1.06)	2.10 (1.07)	2.08 (1.00)	2.12 (0.99)
Agreeableness	1.67 (0.88)	1.63 (0.94)	1.51 (0.84)	1.63 (0.90)
Neuroticism	2.30 (1.11)	2.11 (1.13)	2.18 (1.05)	2.18 (1.16)
Conscientiousness	1.86 (1.02)	1.81 (0.96)	1.79 (1.05)	2.30 (1.11)

4. Discussion

The current study, the first of its kind, sought to examine whether people in general, and those possessing characteristics of the Dark Triad in particular, (a) used specific cues to come to their conclusions about the personality and emotional traits of targets, and (b) are able to accurately assess emotional and personality traits related to vulnerability in targets.

4.1 The Relation Between Dark Triad and Interpersonal Perceptions of Vulnerability in Targets

Despite evidence that Dark Triad individuals possess an inability to recognize the emotions that may impair their ability to recognize and target vulnerable victims, they remain prolific and successful offenders (e.g., Laurell & Dåderman, 2005). How is it that they are so successful at exploiting others if they are not able to choose who is most vulnerable to exploitation? The results of the current study suggest that they simply view everyone as vulnerable to victimization. Results revealed that individuals scoring high on the Dark Triad are more likely to perceive targets as less agreeable, as having low self-esteem, and as highly neurotic, depressed, and anxious. Based on research delineating the personality and emotional traits associated with vulnerability, it appears that Dark Triad individuals are biased towards believing that everyone is weak and overly emotional. Similar results were found for each of the individual subcomponents of the Dark Triad. For example, narcissists perceive targets as low on openness to new experiences, conscientiousness, extraversion, and high on depression. Psychopaths generally perceive targets to be less agreeable, and highly neurotic, depressed, and anxious, and Machiavellians perceive targets as more neurotic, anxious, and depressed.

There are two possible explanations for these beliefs. The first possible

explanation is that individuals characteristic of the Dark Triad are unable to experience emotion and empathy as others do (e.g., Veselka, Schermer, & Vernon, 2012; Wai & Tiliopoulos, 2012) which leads to their belief that targets are highly emotional, which makes them vulnerable to victimization. They may be able to define the emotions themselves, but as they have never genuinely experienced them, they must rely on explanations from others to understand emotion. It is possible that because they are so lacking in emotion they believe that people who do experience regular emotion are overly emotional and weak.

The second possible explanation for the Dark Triad's biased worldview is that Dark Triad individuals believe people in general possess the same dark qualities as themselves. Mahaffey and Marcus (2006) revealed that individuals who rated themselves as high in psychopathy were more likely to rate other participants as high in psychopathy as well. It is possible that this belief extends to narcissists and Machiavellians, and that individuals who possess these traits perceive targets to have personalities similar to their own. For example, a study that mapped the Dark Triad traits onto the Big 5 personality traits revealed that individuals possessing characteristics of the Dark Triad are less agreeable (Bradlee & Emmons, 1992; Jonason & Webster, 2010; Lee & Ashton, 2005; Veselka et al., 2012). In the current study, individuals characteristic of the Dark Triad (and its subcomponents) rated all targets as significantly less agreeable regardless of accuracy.

There also is evidence that personality traits in general influence the manner in which people evaluate targets. For example, self-centered individuals in general possess a "negative other" bias. That is, individuals who are grandiose and feel superior to others

(both traits associated with the Dark Triad and its subcomponents) have a tendency towards evaluating targets negatively in general (Back, Schmukle, & Egloff, 2011; Roberts & Robins, 2000). Conversely, agreeableness is highly correlated with evaluating targets positively (Back et al., 2011; John, Naumann, & Soto, 2008). As has been discussed, all three Dark Triad traits are negatively correlated with agreeableness (Andrew, Cooke & Muncer, 2008; Austin et al., 2007; Miller, Gaughan, Maples, & Price, 2011) which would likely result in a negative correlation with viewing other favourably. Oddly enough, individuals who are considered to be self-centered are likely to be evaluated positively by others. This is likely directly related to their skill at impression management.

Similar research conducted with Dark Triad individuals confirms that they possess a *negative other bias* (Christie & Geis, 1970; Morf & Rhodewalt, 1993). For example, Rauthmann (2012) had individuals high on measures of the Dark Triad work with a partner on a cooperative task and then rate the attributes of the partner. Narcissists reported targets as less conscientious and Machiavellians reported targets as low on openness to new experiences, intelligence, and interpersonal skills. It was suggested, just as Mahaffey and Marcus (2006) had suggested, that Dark Triad individuals project their own unfavourable traits onto others (Rauthmann, 2012).

This is the first study to assess psychopaths', narcissists', and Machiavellians' general attitudes towards others while also assessing their ability to assess the personality traits in targets. Individuals high on the Dark Triad, SRP, and NPI were all significantly worse than those low in these traits at assessing agreeableness in the targets. The current results suggest that these individuals may not be worse at interpersonal perception *per se*,

but simply believe everyone to be less agreeable. These individuals may not even attempt to assess targets for vulnerability, but simply believe that all targets are vulnerable to exploitation.

In addition to understanding whether individuals are able to accurately assess the traits of targets, the cues that they reported using to make their decisions were analyzed to better comprehend how they make their decisions. A short qualitative assessment of the open-ended questions resulted in six major cue categories: verbal cues, vocal tone, body language, facial expressions, gaze, and intuition. The verbal cues and the observers' intuition were the two primary cue categories participants used to explain how they made their decisions. Participants in similar personality assessment studies also have reported using primarily verbal cues to inform their decisions (Ko, Judd, & Stapel, 2009; Mehl, Gosling, & Pennebaker, 2006). The widespread use of intuition also is not surprising as previous studies have reported that participants often are not able to explain to the researcher how they went about making their assessment (Wheeler et al., 2009). Further, there is evidence that intuition is used to make a wide variety of interpersonal assessments, including trustworthiness (ten Brinke & Porter, in press). It also is possible that observers use specific verbal or non-verbal cues to make their assessments, but because the decisions are made implicitly they are not able to verbalize how they came to their conclusion.

The cues used by high scoring Dark Triad individuals also were analyzed. The results revealed that individuals characteristic of the Dark Triad reported using fewer cues in general, and significantly fewer cues when assessing emotional traits. This may be due to the finding that high Dark Triad individuals are less likely to look for cues to

vulnerability because of their belief that all targets possess traits related to vulnerability, and that all targets were highly emotional regardless of any particular cues. Although they used fewer cues, when they did report the cues that they used to make their decisions, Dark Triad individuals followed the same pattern of cue use as the general sample. That is, they relied on verbal cues followed by intuition to make their assessments of traits in general, but relied primarily on intuition to inform their decisions of vulnerability. Further, individuals high on the Dark Triad and Machiavellianism were less likely to report considering facial expressions when making their decisions. This finding is consistent with research demonstrating that high Dark Triad individuals are unable to read and comprehend facial expressions (e.g., Veselka et al., 2012; Wai & Tiliopoulos, 2012), perhaps resulting in them using fewer facial cues when making decisions pertaining to vulnerability.

4.2 The Relation Between Dark Triad and Accuracy of Interpersonal Perceptions of Vulnerability in Targets

The current study revealed that the general public performs moderately well, whereas individuals characteristic of the Dark Triad perform at chance or worse when assessing the personality and emotional traits of targets. Further, the study provided many other insights into the way in which people in general, as well as those high in the Dark Triad, consciously and unconsciously perceive others. For example, participants in general were most accurate at assessing extraversion and least accurate at assessing self-esteem in the targets. These findings are in line with previous research on interpersonal perception of the Big 5 personality traits; participants are often most accurate at rating extraversion (Borkenau et al., 2009; Carney et al., 2007; Hall et al., 2008). A similar study by Kilianski

(2008) to assess participants' ability to rate targets on self-esteem found that participants accurately rated self-esteem (second only to extraversion), but the observers in that study interacted with the targets face-to-face for over 10 min. As the current study only used thin slices of video, perhaps much more time and closer contact with a target is required to make an accurate assessment of self-esteem. Participants also were particularly poor at assessing anxiety in the targets. This is possibly due to the fact that all participants, regardless of whether they self-reported as high on trait anxiety, were more anxious than usual because they were being filmed. High levels of state anxiety caused by speaking in front of a camera was not taken into account by the self-reported measure of anxiety completed by the participant weeks before filming. Observer ratings of participant anxiety were likely more reflective of the participants' state at the time of filming than their general level of anxiety, and this was not taken into account. Further, there were no gender differences found for overall and individual trait accuracy; this also is congruent with previous research (Kilianski, 2008).

It is interesting that people are generally poor at assessing the traits of others despite how often people assess others to inform social interaction. Perhaps it is because interpersonal perception is largely an unconscious process and people simply are poor at consciously assessing and interpreting the verbal and non-verbal behaviour of others. It is also likely that the general public has no need for the conscious assessment of the personality traits related to vulnerability in others. However, there are some individuals who may benefit from the ability to accurately assess the personality traits of others, specifically individuals who seek to manipulate and exploit individuals who are vulnerable.

It was hypothesized that individuals characteristic of the Dark Triad—particularly those high in psychopathy—would be more accurate at assessing the personality and emotional traits associated with vulnerability than those scoring low on measures of the Dark Triad. However, individuals characteristic of the Dark Triad and of its subcomponents performed similarly to the general public at assessing most personality and emotional traits others, and with the exception of Machiavellianism, were significantly less accurate even at assessing agreeableness. This finding is incongruent with the numerous studies that have found that individuals can accurately assess vulnerability from body language (e.g., Grayson & Stein, 1981; Richards et al., 1991; Wheeler et al., 2009). These fundamentally different findings may be related to the different methodologies used in the current study. For example, the current study included both male and female targets and male and female participant observers to ensure ecological validity, whereas previous studies primarily used female targets and male participant observers (e.g., Grayson & Stein, 1981; Gunns et al., 2002; Sakaguchi & Hasegawa, 2006). It is possible that men are significantly better at identifying vulnerability in women, but that this effect is lost when they are asked to assess vulnerability in other men as well.

Also, the current study was one of the first to assess accuracy based on target/observer agreement, as opposed to basing accuracy on agreement between observers. The results of the Grayson and Stein study reveal that offenders agreed upon whom they believed to be vulnerable to attack, but targets themselves were not assessed for their degree of vulnerability. It is possible that the difference in accuracy scores is caused by the difference in methodology. Further, the current study is the first to examine

more than one personality attribute characteristic of vulnerability at one time. It is possible that when observers are asked to assess one personality attribute at a time they are able to focus their attention to the cues predictive of that attribute and make an accurate assessment but become overwhelmed when attempting to assess targets for 10 individual traits. Perhaps participants, especially Dark Triad individuals, are not able to assess 10 distinct personality traits at one time. Future research should isolate each of the 10 personality traits included in this study, and ask participants to focus on assessing one trait at a time.

Despite the results of the current study not supporting previous vulnerability assessment research, the results are congruent with the ample evidence that psychopaths, narcissists, and Machiavellians are poor at reading and understanding the emotions of targets (e.g., Bagley, Abramowitz, & Kosson, 2009; Marsh & Cardinale, 2012; Pham & Philippot, 2010; Veselka et al., 2012). Specifically, research suggests that psychopaths lack the basic ability to identify facial expressions in general (Brook, 2012; Pham & Philippot, 2010), and are particularly poor at identifying facial expressions of negative emotions such as fear (Blair et al., 2004; Marsh & Blair, 2008; Wilson, Juodis, & Porter, 2011), disgust (Kosson, Suchy, Mayer, & Libby, 2002), and sadness (Marsh & Blair, 2008). This is likely due to their lack of emotional intelligence (Ermer, Kahn, Salovey, & Kiehl, 2012; Visser, Bay, Cook, & Myburgh, 2010).

Physical evidence exists to suggest that the areas in the brain relevant to emotional processing in psychopaths and narcissists are significantly different (Ermer, Cope, Nyalakanti, Calhoun, & Kiehl, 2012; Fan et al., 2011; Hoff, Beneventi, Galta, & Wik, 2009) from the general population. For example, Deeley et al. (2006) found that

psychopaths process emotional facial expressions differently from normal controls. Specifically, there was more activation in the fusiform and extrastriate areas when psychopaths processed happiness and less activation when they processed fear (and there was significantly less activation in the brains of psychopaths than in the brains of controls for both emotions). Machiavellian and narcissism also have demonstrated an impairment for identifying emotional facial expressions, negative expressions in particular (Wai & Tiliopoulos, 2012). Although participants in the current study were not asked to explicitly identify emotions in the targets, they were asked to use non-verbal behaviour to identify the personality and emotional traits, and were unable to successfully do so.

The gender of the participant observer also played a role in the Dark Triad's accuracy for interpersonal perception. Specifically, male participants who had a high Dark Triad composite score were worse than low scorers at assessing the target's level of interpersonal trust but were better at assessing openness to new experiences. Individual male by Dark Triad subcomponent scale analyses revealed that men scoring high on the SRP, NPI, and MACH-IV were worse at assessing interpersonal trust but better at assessing openness to new experiences. Men scoring high on the SRP also were more accurate at assessing extraversion in the targets. The current study had a relatively small sample of male participants, suggesting that any results found for male participants must be robust. Male participants scored significantly higher than women on all three measures of the Dark Triad, suggesting that it is the male participants who are best representative of the Dark Triad in the current sample, and perhaps best representative of the emotional recognition and emotional intelligence deficits associated with these disorders. In fact, the majority of emotional deficit research has been done with all male samples (e.g., Marsh &

Blair, 2008), suggesting that the theory best applies to the male participants in the current study. This theory does help to provide an explanation for the male by Dark Triad results, specifically the finding that they are worse than non-Dark Triad individuals at identifying interpersonal trust in the targets.

It also is possible that the wrong proxy measure of vulnerability (assertiveness) was used in the current study. If Dark Triad men are particularly adept at assessing openness to new experiences and extraversion, perhaps it is these traits that they look to identify vulnerability in potential victims. Also, it is possible that Dark Triad personalities possess a different definition of vulnerability, one in which a target's degree of interpersonal trust is not relevant, and in which openness to new experiences is a strong indicator of vulnerability. If this were the case, then participants high in Dark Triad characteristics would have been best able to assess vulnerability. Little is known about the specific traits that offenders consider important when assessing vulnerability, and it is possible that the findings of this study show that they attend closely to, and excel at identifying, openness to new experiences.

There also were significant female by Dark Triad relationships for accuracy. Specifically, women scoring high on the Dark Triad composite score were significantly worse at assessing agreeableness and neuroticism. Women scoring high on the SRP and the NPI were significantly worse at identifying neuroticism in the targets, and those scoring high on the NPI also were worse at accurately identifying agreeableness. There were no significant relationships for female Machiavellians. These findings can be directly related back to the biases that Dark Triad personalities hold against the targets, specifically that they rated all targets as lower on agreeableness and neuroticism, directly

influencing their accuracy scores which may explain why they are poor at accurately identifying these traits in targets. Men were not less accurate at assessing these two traits, which suggests that such women hold stronger “negative other” biases than men. There were no biases against interpersonal trust and openness to new experiences, the traits that men performed especially poorly on.

In addition to considering which cues participants reported using, an analysis of their accuracy by presentation modality was conducted as well. It was hypothesized that participants would be most accurate at assessing the traits of targets after viewing the audio/video clips because they most closely resemble real world interactions. As participants generally get to see and hear the target in real world face-to-face interactions, it was hypothesized that they would be able to label targets most accurately in this condition. Additionally, this presentation modality provides the richest cue information, including verbal and non-verbal behaviour, which should improve their ability to detect vulnerability in targets (Holtzman & Strube, 2010). Contrary to the second hypothesis, the results of this study reveal that participants were able to assess the personality traits of targets more accurately after being presented with video only clips.

Previous research has revealed that there exists high target/observer agreement for a number of personality traits when using thin slice video-only clips and that this high degree of accuracy is directly related to observable, non-verbal behaviour (Gunns et al., 2002; Oltmanns & Turkheimer, 2009). Regardless of the content of the thinslice clips, which range from interviews about controversial topics (muted) to targets simply walking across the street (Richards et al., 1991; Wheeler et al., 2009), observers have been able to accurately identify vulnerability. Importantly, the results of one of these vulnerability

assessment studies also has shown that their participants were accurate at identifying vulnerability in targets regardless of whether there was audio (Wheeler et al., 2009). This is surprising, as the video-only clips have fewer cues for participants to consider when making their decisions about the traits of the target. However, this too may be explained by the emotional processing deficit that Dark Triad individuals possess (Day & Wong, 1996). Specifically, Dark Triad individuals have difficulty identifying emotion from vocal cues (Bagley et al., 2009), and this may prevent them from properly understanding both the emotional words used and the emotional tone. If Dark Triad participants were unable to recognize and understand the emotional words and tone used by the targets, it may have confused them, leading to lower accuracy for traits. Finally, participants were least accurate at assessing the traits of targets after reading transcripts. This is congruent with the hypothesis as this modality had the least amount of information to draw from and had no non-verbal cues for the participants to use when making their decisions to assess (Holtzman & Strube, 2010; Wheeler et al., 2009).

The results of the current study reveal that Dark Triad individuals are not able to accurately assess the personality and emotional traits of targets, likely due, in part, to the fact that they are attending to the wrong cues. Participants in general, and Dark Triad individuals in particular, reported using verbal cues and the content of the target's speech when assessing their personality traits, yet rated targets significantly more accurately on the one presentation modality that did not include speech content (video only). Further, they performed significantly worse on the presentation modality that included only speech content: the condition in which they should have performed significantly better because there were no distractions from the cue that they rely on most when making their

decisions. The results of these analyses reveal two important clues to the lack of accuracy for interpersonal assessment. The first being that the participants were attending to the wrong cue in general and the second being that although they reported using verbal cues most often, they are not using verbal cues when making their decisions given their performance in the video-only condition. Dark Triad individuals in particular reported relying mostly on intuition when assessing targets, demonstrating the lack of emotional insight that these individuals possess. They may simply be guessing when rating targets, or may simply be relying on their perceptual bias that all targets are weak and vulnerable to victimization. This provides some insight into why they perform so poorly when attempting to actively assess the personality traits of targets.

Despite their inability to differentiate vulnerable individuals from non-vulnerable individuals, Dark Triad individuals remain successful offenders. Dark Triad offenders often pre-select their victims, but the results of the current study suggest that they do not use cues to vulnerability to target victims. It also is possible that Dark Triad individuals pre-select their victims, but do so at random because they are un-preferential offenders who attempt to offend against a large number of people until they find someone who is vulnerable to being victimized. There is a large body of evidence to suggest that Dark Triad individuals use active strategies to manipulate and exploit others, and that the use of these strategies allows them to be better manipulators. They also might garner a lot of experience and practice in exploitation as they attempt to manipulate everyone, and have simply become more skilled at manipulating and exploiting all individuals, regardless of whether they are vulnerable to victimization.

Dark Triad individuals may be more skilled at manipulation because they are constantly employing active strategies to deceive and manipulate others. From impression management to active deception, there is a wealth of research to suggest that Dark Triad individuals have a number of manipulation tactics at their disposal (Back et al., 2010; Jonason & Webster, 2012). An example of an impression management strategy is the ability for individuals high in the Dark Triad to make themselves appear more physically attractive than they are. By asking participants to rate the attractiveness of high and low Dark Triad individuals before and after scrubbing their makeup off and wearing baggy clothing, Holtzman and Strube (2012) revealed that high Dark Triad individuals are consistently rated as more attractive in the pre-photos (while their appearance was still as it was when they walked in to the lab) than low Dark Triad individuals. As has been discussed, first impressions are largely based on attractiveness, and Dark Triad individuals make excellent first impressions, likely because they are skilled at making themselves more desirable to others.

Dark Triad individuals also employ strategies to help them gain access to resources. For example, when involved in a multi-player game in which the goal was to win money, Machiavellian participants consistently won more money than their non-Machiavellian counterparts (Rauthmann, 2012). An analysis of the proceedings of the game revealed that the Machiavellians monitored the behaviour of other players closely and took the other players' behaviour into account when making decisions. Machiavellians are opportunistic, and are quite skilled at quickly adapting to their environment, especially when a financial reward is involved (Sakalaki, Richardson, & Thépaut, 2007; Williams et al., 2010).

Dark Triad individuals use active strategies for manipulation in all aspects of their life; from their search for sexual partners to the workplace, they are considered to live an agentic lifestyle (Jonason et al., 2010). For example, Dark Triad individuals often approach sexual relationships as a game, engaging in sexual intercourse without feeling emotion for their partner (Jonason & Kavanagh, 2010). As employees, they use both soft and hard threats to get promotions, often forcing co-workers to do their work or cover for them (Jonason et al., 2012). While Dark Triad individuals may pre-select victims for particular crimes, they often will use their social strategies on all those around them, regardless of whether they perceive them to be vulnerable (Jonason & Webster, 2012).

4.3 Limitations

The current study had a number of limitations. First, targets did not provide a measure of their emotional state at the time that the videos were filmed. Participants completed an emotional trait measure online weeks before filming occurred, and although we have an understanding of the target's general level of depression and anxiety, their emotional state at the time of filming could have been vastly different and in turn had an effect on their verbal and non-verbal behaviour. Further, regardless of their emotional state immediately before filming, it is possible that the manner in which the data were collected may have affected the results. The short videos were filmed in person, and participants were informed that they were being filmed. Although the participants may normally feel comfortable and at ease in social interactions, the presence of the camera may have affected their behaviour. In the future, researchers should attempt to use more covert methods of filming targets to reduce the anxiety that is associated with being in front of a camera.

In the current study participants assessed only two participants in each modality type (participants rated a total of eight targets, two in each of the four modalities). This resulted in the required use of difference scores to analyze their accuracy for interpersonal perception. Future research should ensure that participants assess three or more targets per modality so that correlational methods can be used to analyze the accuracy relationship for a more refined understanding of this relationship.

Finally, the results of the current study may be culture-specific. The construct of psychopathy manifests differently across culture and it is possible that the manner in which North American psychopaths perceive others and choose victims is different from psychopaths from other cultures (see Bolt, Hare, & Neumann, 2007; Hare et al., in press). Further, little is known about the manifestation of the Dark Triad cross-culturally. This should be taken into consideration when generalizing the results of the current study.

4.4 Future Directions

This line of research is potentially of value for a number of reasons. First, an understanding of the manner in which offenders target their victims has major implications for treatment of offenders and for helping to protect victims. The results of this study suggest that offenders view targets as weak and vulnerable to exploitation, and are not particularly adept at identifying the personality and emotional traits associated with vulnerability. Treatment providers should focus less on their predatory behaviour and focus more on reducing the active strategies for manipulation that these cunning manipulators use. Further, if it is known that there are not specific personality traits that offenders look for in victims, a better method of helping victims may be to help them

identify and protect themselves from the active strategies that Dark Triad personalities employ. For example, people could be warned not to fall for individuals who initially present as charming and confident. Further, individuals could be informed as to how to protect themselves from the soft and hard manipulation tactics that these individuals use.

Although the current study revealed some fascinating results, I believe that there is much more to be learned about the Dark Triad and interpersonal perception. Future research should consider using more salient targets and participant observers. That is, future studies should use a clinically vulnerable population (with much higher levels of depression and anxiety, etc.) as the targets as they may provide more cues of vulnerability than the undergraduate sample used in the current study. Similarly, this study should be conducted with criminal offenders who are characteristic of the Dark Triad. Offenders may have more experience with manipulation and exploitation and may be more skilled at interpersonal perception. Replications of this study with a non-university sample would increase the external validity of these findings. Further, research in interpersonal perception appears to be moving towards a self and other composite score for personality traits. That is, targets complete self-reports about their traits and then similar questionnaires are sent to their loved one to determine how they would rank the target on the traits in questions. This allows for a more accurate “target” score, which will help to improve interpersonal perception accuracy research.

Future research also should examine accuracy in interpersonal perception when behaviour related to vulnerability is controlled. Each of the reported cues used in the current study should be isolated and manipulated to assess exactly what types of verbal and non-verbal behaviour individuals use to assess the traits associated with vulnerability.

For example, researchers could write specific scripts that purposefully include language that is characteristic of the personality and emotional traits characteristic of vulnerability for targets to use when describing themselves or could require targets to use specific body language designed to exude vulnerability throughout the clip. A more controlled experiment would greatly contribute to the existing knowledge of assessment of vulnerability in targets.

Finally, I believe that it is imperative that research be done to understand exactly how Dark Triad individuals define vulnerability. In the current study we used personality and emotional traits associated with victimization, but perhaps Dark Triad individuals conceptualize vulnerability differently and we are studying the wrong set of characteristics entirely. A different understanding of what makes an individual vulnerable would explain their poor accuracy for assessment of vulnerability in the current study.

Understanding the manner in which humans assess one another is key to understanding human interaction. Interpersonal assessment is used in all social interactions, both pro- and anti-social. In anti-social situations it can be used to identify weakness or vulnerability in targets. There are some individuals who are more likely to use this sensitive information to their advantage to manipulate and exploit others. Possessing a greater understanding of the way these dark personalities identify and choose their victims is crucial to understanding how to help vulnerable individuals protect themselves. The current study provides a unique look into the cognitive processes behind victim selection. Previous research had identified that psychopaths and offenders agreed upon whom they would target for a violent crime, but this is the first study to identify how they perceive potential victims. The results suggest that Dark Triad personalities have a

cynical worldview, as they believe all those around them to be overly emotional, weak, and vulnerable. When asked to elucidate the cues that they use to come to these decisions about others, individuals scoring high on the Dark Triad report primarily using verbal cues to assess personality and emotional traits, but report relying on intuition to come to their decisions about vulnerability. This is the same pattern of primary cue use as the general pool of participants in the current study. That is, Dark Triad individuals and the general public utilize the same cues when making interpersonal assessments. Despite their reliance on verbal cues, the current study shows that participants in general performed significantly worse in the presentation modality that allowed for verbal cue analysis (audio/video, audio only, and transcript) and were more accurate at personality assessments after viewing the video-only clips.

Finally, Dark Triad individuals performed at the level of chance for trait assessment, at times performing significantly worse at interpersonal perception, suggesting that individuals characteristic of the Dark Triad may not be more skilled at identifying vulnerability in potential victims, and that they may instead just victimize more often. It is possible that Dark Triad individuals are constantly using active strategies to exploit others and due to their expertise in manipulation they are able to victimize whomever they choose, whether they are considered vulnerable or not. Instead of the predatory lion who isolates the weak gazelle for attack, it may be better explained as a lion who is skilled in hunting and so is able to attack whichever gazelle he so chooses, regardless of its vulnerability to victimization.

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Appendices

Appendix A: Preliminary Investigation of Cues to Vulnerability

A comprehensive but preliminary examination was conducted of the cues to psychological vulnerability that people may exhibit unconsciously and involuntarily. Specifically, for the first time each of the facial expressions, linguistic patterns, and body language cues were examined among a sample of videotaped individuals with documented psychological vulnerability (e.g., low self-esteem, assertiveness, extraversion, openness to new experiences, agreeableness, and conscientiousness as well as high neuroticism, anxiety, and depression). This study must be considered to be preliminary, however, due to a small sample size with the intention of using these individuals as targets in the main study.

H1: (a) Based on the wide body of evidence that facial expressions can be used to predict emotional states, and the growing body of research that shows that facial expressions can be reliable predictors of personality traits, I hypothesize that facial expressions, specifically facial expressions reflecting negative emotions such as sadness and anger, will be associated with the personality traits and emotional states characteristic of vulnerability. (b) Previous research has demonstrated that vulnerability can be detected from body language, such as one's gait and the movement of one's limbs (e.g., Grayson & Stein, 1981; Wheeler et al., 2009). It is proposed that individuals more vulnerable to victimization will exhibit different body language than non-vulnerable individuals. More specifically, I predict that vulnerable participants will use fewer expansive movements, that is movements of the arms and legs, than those who are not vulnerable to

victimization. (c) Based on the evidence that language is often a direct reflection of the speaker's personality traits and emotional state at the time (Hirsh & Peterson, 2009), I hypothesize that individuals who possess the constellation of traits associated with vulnerability will use more negative language when describing themselves than their less vulnerable counterparts.

Methods

Participants

Participants in this study consisted of undergraduate students from the University of British Columbia Okanagan ($N = 15$). The mean age of the participants was 21.9 years. Of these students, nine were female ($M = 21.56$ years, $SD = .78$) and six were male ($M = 22.50$ years, $SD = 1.38$). Caucasian students made up 73.3% of the sample, and 26.7% identified as Asian.

Measures

Facial Expression Analysis. Emotional facial expressions were coded using a technique developed and established by Porter and ten Brinke (2008). This procedure was based on the Pictures of Facial Affect (POFA; Ekman & Friesen, 1975) and the Facial Action Coding System (FACS; Ekman, Friesen, & Hagar, 2002). Training for this coding included developing a thorough knowledge of the musculature of the face in addition to the facial action units involved in the 7 universal emotions facial expressions (happiness, anger, fear, disgust, surprise, sadness, and contempt; Ekman & Friesen, 1975; Ekman et al., 1987). This method has been used in numerous studies of deception detection (ten Brinke, & Porter, 2011; Porter, ten Brinke, & Wallace, 2012; ten Brinke et al., 2012). To

code the facial expressions, researchers recorded the type and duration of emotion for both the upper and lower portion of the face. The videos were viewed frame by frame, with each frame representing 1/30th of a second. In order to examine the lower and upper face separately, each of the 32 457 was coded twice, once coding only facial expressions on the upper face and the second coding facial expressions in the lower face only. This resulted in the coding of 64 914 frames in total.

Body Language Analysis. Body language was recorded for type and duration of movement. Movements recorded included: gaze aversion, illustrators (operationalized as supplementary hand movements that help to emphasize what the participant was saying), shifting of seat position, and head, arm, hand, leg, and foot movement. Posture was coded as either straight or slouched. As research in the field of vulnerability has not focused on non-verbal, the non-verbal body language coding scheme was derived largely from the body language coding scheme often used when attempting to detect deception (e.g., Vrij, Edward, Roberts, & Bull, 2000). Similar to the coding of the facial expressions, body language was coded frame by frame for both type and duration of body language categories.

Linguistic Analysis. The software program Linguistic Inquiry and Word Count (LIWC), was used for analysis of transcripts of the videos. The 15 clips were transcribed by the researcher and a research assistant who wrote out the scripts as they listened to the audio portions of each video. The LIWC program counts words that are deemed to be psychologically relevant and gives a percentage for each category relative to the total word count (Tausczik & Pennebaker, 2010). Dictionaries in LIWC contain compilations of words that define a particular category. Findings suggest that LIWC can be used to

examine facets such as: attention, emotion, individual differences, relationships, and thinking styles (Tausczik & Pennebaker, 2010). The LIWC program contains a large number of word categories to choose from. For the purpose of this study, only word categories that were deemed theoretically relevant to the construct of vulnerability were selected to be included in the analysis (for example, the number of first person pronouns and “positive emotion” words were included in the analysis as they are likely to be a direct reflection of an individual’s emotional state). The remaining variables that were examined include: word count, words per sentence, unique words, total pronouns, first person singular (*I*), first person plural (*we*), negations (*no, never, not*), assents (*yes, ok*), positive emotions, optimism, negative emotions, anger, certainty (*always, never*), friends, family, school, achievement (*try, goal, win*), religion, sexual, non-fluencies (*uhh, err*), and fillers (*you know, I mean*). The LIWC program has been successfully used as a valid measure of emotional expression (Kahn, Tobin, Massey, & Anderson, 2007), personality traits (Hirsh & Peterson, 2009), and deception detection in computer-mediated deception detection studies (Hancock et al., 2008)

Coding Reliability

Facial Emotions. A trained undergraduate student, blind to hypotheses and personality and emotional trait ratings coded three (20%) of the fifteen videos to assess inter-rater reliability. The duration of emotional expressions (measured in number of frames as coded by the two raters were correlated between .81 and .99 ($p < .05$) for the five emotional expressions compared. Further, no mean difference between raters was revealed ($p > .05$). Inter-rater reliability was deemed “excellent” in accordance with the rating scheme set forth by Cicchetti and Sparrow (1981) Fleiss (1981).

Non-verbal Variables. The same undergraduate student also coded three (20%) of the fifteen videos for non-verbal behaviour. Again, the two coder's ratings were highly correlated, between .82 and .92 ($p < .05$) and means were not significantly different between the coders ($p > .05$). Inter-rater reliability was deemed "excellent" in accordance with the rating scheme set forth by Cicchetti and Sparrow (1981) and Fleiss (1981).

Procedure

Participants were required to complete six personality and emotional trait questionnaires prior to recording the video. After participants had completed all of the questionnaires, they were ranked as either high or low vulnerability based on their scores on the RAS. Later, the participants who were deemed highly vulnerable and not at all vulnerable were brought back into the laboratory to film the videos. The psychological scale scores are representative of the individual's personality traits and emotional state at the time that the video was recorded. The videos in this study were originally created for a doctoral dissertation at Dalhousie University under the direction of Dr. Stephen Porter. The video-clips consisted of each participant speaking about him/herself into a camera. The video-clips ranged from 27 to 132 seconds in length ($M = 71.7$, $SD = 29.7$).

Ten personality and emotional traits related to vulnerability were measured. Self-esteem was evaluated using the Rosenberg Self-Esteem Scale (RSES). The RSES consists of 10-items, five positively worded and five negatively worded. The items were rated on a four-point Likert scale ranging from strongly disagree to strongly agree. This scale uses a two-factor model: high RSES scores indicate high self-esteem; low scores indicate low self-esteem (Rosenberg, 1965). This two-factor model of positive and negative self-

esteem has been supported by numerous studies (e.g. Huang & Dong, 2012). The Rathus Assertiveness Scale (RAS) was used to measure assertiveness – defined as having a confident or forceful personality. Each of 30 items on the scale were rated from positive three to negative three (i.e., +3 = *very characteristic of me*, -3 = *very uncharacteristic of me*). This scale is composed of four factors: assertiveness, contentment, health, and intelligence and prosperity (Rathus, 1973). This 30-item scale demonstrates high external validity (Rathus, 1973).

Trustingness, or ones willingness to trust others, was measured using the Interpersonal Trust Scale (ITS). The ITS is a five-point Likert scale (*strongly agree* to *strongly disagree*) with 25 items relating directly to trust and 15 items that function as fillers. Factor analysis has shown that the scale measures a number of types of trust including Political Trust, Paternal Trust, and the Trust of Strangers (Wright & Tedeschi, 1975). Anxiety was measured using The Beck Anxiety Inventory (BAI). The BAI is a 21-item questionnaire in which patients rank the severity of a symptom related to anxiety on a four-point Likert scale (Beck, 1988). Some symptoms include numbness, sweating, nervousness, fear of the worst happening, and fear of dying (Beck, Epstein, Brown, & Steer, 1988). It has been shown to have high internal consistency and test-retest reliability (Stulz & Crits-Christoph, 2010).

The Beck Depression Inventory (BDI) was administered to measure depression. Similar to BAI, the BDI contains 21-items on a four-point Likert scale. The items pertain to symptoms of depression, and the respondent is required to rank the severity of his or her symptoms. Examples of symptoms include sadness, feeling discouraged, guilt, disappointment, crying, and sleeping problems (Beck, 1961; Beck, Ward, & Mendelson,

Mock, & Erbaugh, 1961). Studies have demonstrated that this scale possesses high internal consistency, concurrent validity, and construct validity (Beck, Steer, & Garbin, 1988). The relationship with BDI scores and age, education, and gender are equivocal (Beck et al., 1988). Finally, the Big Five Inventory (BFI) was used to measure the personality traits that encompass the Big Five: openness, conscientiousness, extraversion, agreeableness, and neuroticism. This questionnaire consists of 44 items, each on a four-point Likert scale (*strongly disagree* to *strongly agree*) and has a five-factor model (i.e., one factor for each trait) (John, Donahue, & Kentle, 1991).

After completing these questionnaires, specific participants were selected to be filmed based on an extremely high or extremely low score on the RAS. These participants were initially videotaped engaging in small talk with the researcher; this was done to help the student feel more comfortable while talking in front of the camera. The camera was positioned to capture the full body from head to toe. After engaging in a couple minutes of small talk, the students were then asked to “talk about themselves for less than a minute” and “to tell the researcher everything that they thought that other people should know about them”. The 15 video-clips are composed of their recorded responses to this question.

Results

Each of the three possible cues to vulnerability was analyzed using correlation and regression. Bonferroni corrections were not calculated because the preliminary examination of cues was purely exploratory. The means and standard deviations of each personality trait and emotional state can be found in Table 1.

Table A-1

Means and Standard Deviations for Target Personality and Emotional Traits

	Mean (SD)	Range
Assertiveness	1.00 (27.58)	-41.00-43.00
Self-Esteem	21.80 (5.98)	12.00-29.00
Interpersonal Trust	78.00 (9.30)	61.00-90.00
Anxiety	10.87 (11.96)	1.00-43.00
Depression	9.00 (6.37)	4.00-26.00
Openness to new experiences	3.34 (0.67)	2.40-4.80
Extraversion	3.22 (0.81)	1.75-4.38
Neuroticism	2.59 (0.81)	1.25-4.00
Conscientiousness	3.72 (0.51)	2.44-4.78
Agreeableness	3.80 (0.57)	2.56 – 4.56

Facial Expressions

Several bivariate correlation analyses were conducted to determine whether relationships existed between the personality and emotional trait measures and the facial expressions used by the participants. In relation to the personality traits associated with vulnerability, significant correlations were found between two of the Big 5 personality traits and facial expression use. Specifically, BFI – Extraversion scores were significantly negatively correlated with both duration of anger in the upper face ($r = -.55, p = .03$), and

happiness in the lower face ($r = -.60, p = .02$) and BFI – Conscientiousness scores were negatively correlated with the duration of happiness in the upper face ($r = -.71, p = .003$), and positively correlated with the duration of a neutral expression in the upper face ($r = -.70, p = .004$). In addition to the Big 5 personality traits, assertiveness as measured by the RAS was significantly negatively correlated with duration of anger in the upper face ($r = -.61, p = .02$). Finally, there was one significant relationship found to exist between an emotional trait and facial expression use. A significant positive correlation was present between BAI scores and duration of happiness in the upper face ($r = .85, p < .001$).

In addition to the simple correlational analyses, multiple regression analysis was employed to determine whether facial expressions significantly predicted participants' score on the RAS (the proxy measure of vulnerability for this study). The results of the regression indicated that the predictors explained 96.4% of the variance ($R^2 = .93, F(3,14) = 3.64, p = .16$). Specifically, the results revealed that duration of anger in the upper face significantly predicted RAS scores ($\beta = -1.26, p = .04$). The expression of anger on the face was the only significant predictor of score on the RAS.

Body Language

Several bivariate correlation analyses were conducted to determine whether relationships existed between the personality and emotional trait measures and the body language displayed by the participants. In relation to the personality traits associated with vulnerability, significant correlations were found for BFI-Conscientiousness and assertiveness. Specifically, BFI – Conscientiousness scores were positively correlated with both gaze aversion ($r = .60, p = .02$) and head movement ($r = .57, p = .03$) and

negatively correlated with illustrator use ($r = -.60, p = .02$). RAS scores were negatively correlated with non-illustrator hand movement ($r = .52, p = .05$). Significant relationships also existed between emotional traits and body language use. BAI scores were significantly positively correlated with illustrator use ($r = .62, p = .01$). BDI scores were significantly positively correlated with leg movement ($r = .81, p < .001$) and illustrator use ($r = .62, p = .01$).

Multiple regression analysis was used to determine whether body language significantly predicted participants' score on the RAS (the proxy measure of vulnerability for the current study). The results of the regression indicated the predictors explained 92.8% of the variance in RAS scores ($R^2 = .86, F(4,14) = 2.47, p = .20$). Duration of hand movement was the only significant predictor of RAS score ($\beta = -1.45, p = .03$), that is, individuals who moved their hands in a non-illustrative fashion scored lower on the measure of assertiveness.

LIWC

Several bivariate correlation analyses were conducted to determine whether relationships existed between the personality and emotional trait measures and the language used by the participants. In relation to the personality traits associated with vulnerability, significant correlations were found between Big 5 personality traits and language use. Specifically, BFI – Extraversion scores were significantly and positively correlated with positive emotion words ($r = .64, p = .01$), certainty words ($r = .66, p = .01$), and achievement words ($r = .52, p = .05$). Significant negative correlations were found between BFI – Neuroticism scores and negative emotion words ($r = -.54, p = .04$), certainty words ($r = -.54, p = .04$) and anger words ($r = -.59, p = .02$). Finally, BFI –

Conscientiousness scores were significantly negatively correlated with both friendship words ($r = -.60, p = .02$) and non-fluencies (e.g., umm, ahh) ($r = -.51, p = .05$). In addition to the Big 5 personality traits, assertiveness as measured by the RAS was positively correlated with negative emotion words ($r = .52, p = .05$), achievement words ($r = .55, p = .04$), and anger words ($r = .54, p = .04$). Additionally, self-esteem as measured by RSES scores were significant negatively correlated with sexual content words ($r = -.66, p = .01$) but positively correlated with anger words ($r = .56, p = .03$).

There also were significant relationships between the emotional traits related to vulnerability and language use. Specifically, a significant negative correlation was found between BAI scores and unique words ($r = -.60, p = .02$) whereas a significant positive relationship was found between BAI scores and word count ($r = .66, p = .01$), and sexual words ($r = .86, p < .001$). Also, there were significant positive correlations between BDI scores and both sexual content ($r = .56, p = .03$) and optimism ($r = .57, p = .03$).

Brief Discussion

The results of the preliminary study revealed that there are indeed reliable audio and visual cues to the personality and emotional traits related to vulnerability in our video sample. Even for an extremely small sample it is apparent that those who are likely to be vulnerable to exploitation display distinct facial, behavioural and verbal cues to their personality and emotional traits. For example, BFI-Conscientiousness was negatively correlated with happiness in the upper face, anxiety was positively correlated with illustrator use, and extraversion was positively correlated with achievement and positive emotion words. However, some of the significant relationships found between behaviour

and personality traits were not expected. For example, extraversion was negatively correlated with expressions of happiness in the upper face, depression was positively correlated with leg movement, and depression was positively correlated with optimism words. These findings are most likely explained by the lack of power in the current study. With only 15 participants, extremely small relationships between traits and behaviours may be found to be statistically significant. Despite a small number of inconsistent significant relationships, the results of the preliminary study provide support that there are observable and verbal and non-verbal differences among personality disorders, and justify the use of these videos in the main study. That is, because the individuals in my clips displayed observable cues to the personality and emotional traits related to vulnerability, it is reasonable to ask participants to use the videos to assess the personality and emotional traits of the individuals within them.