THE EFFECTS OF SOCIAL ANXIETY ON ACCURACY IN FIRST IMPRESSIONS

by

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Abstract

Since individuals with social anxiety tend to have difficulties making friends, it may be due to inaccuracy in making and giving off first impressions. The current study used 104 undergraduate students to examine two hypotheses: that individuals high in social anxiety are less accurate in their first impressions of others, and that others form less accurate first impressions of individuals high in social anxiety. Following the Social Accuracy Methodology (SAM; Biesanz, 2010), accuracy was looked at in two ways: normative and distinctive accuracy. Participants rated their own personalities on the abbreviate BFI, engaged in brief round robin interactions with each participant, and then rated their partners' personalities on the same measures. Using hierarchical linear modeling, no support was found for the first set of hypotheses. Perceivers high in social anxiety were equally normatively and distinctly accurate in their appraisals of others' personalities as were perceivers low in social anxiety. Mixed findings were found for the second research question. Targets higher in social anxiety were perceived with the same degree of normative accuracy as targets lower in social anxiety. However, targets higher in social anxiety were perceived with *less* distinctive accuracy compared to targets lower in social anxiety. These findings may have important implications for understanding why socially anxious individuals have difficulty forming friendships, and consequently, may have implications for treatments.

Preface

The present study was submitted to the UBC Behavioural Research Ethics Board and approval was given with the following Certificate Number: H11-02100.

The current study was a collaborative effort between myself, Dr. Lynn Alden, Lauren Human, and Dr. Jeremy Biesanz. I was inspired by Jeremy's work with the Social Accuracy Model (SAM; Biesanz, 2010) and applied his methodology to look at the moderating role of social anxiety for accuracy in first impressions. My research assistants and I conducted the research and inputted the data. Lauren assisted me with the data analysis as she is more familiar with the program R. I wrote up the entire thesis and Lynn assisted the whole way through with pointers while conceptualizing the methods and by editing all my drafts.

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1. Introduction

Social anxiety disorder, defined as "an excessive fear of social or performance situations in which the person may be exposed to unfamiliar persons or scrutinized by others", is an extremely pervasive disorder (Weeks, Heimberg, & Heuer, 2011, p. 217). Based on the National Comorbidity Survey Replication Study conducted between 2001 and 2003, 12.1% of Americans qualify for a diagnosis of social anxiety disorder at some point in their lives, with a median age of onset of age 13, making social anxiety disorder the fourth most common psychiatric disorder in the United States (following major depressive disorder, alcohol abuse, and specific phobia) (Kessler, Berglund, Demler, Jin, & Merikangas, 2005). Furthermore, it has been found that 20% of the population has endorsed experiencing irrational social fears, although the impairment in everyday functioning would not be enough to satisfy diagnostic criteria (Furmark et al., 1999; Pollard & Henderson, 1988).

A common theme in most theories of social anxiety is that social processes contribute to the etiology and maintenance of this condition. The characteristic features of social anxiety also reflect its inherently social nature. Socially anxious individuals have restricted socialization (Dodge, Heimberg, Nyman, & O'Brien, 1987) and have difficulty making friends or entering into intimate relationships (Arkowitz, Hinton, Perl, & Himadi, 1978; Jones & Russell, 1982; Montgomery, Haemmerlie, & Edwards, 1991), a problem that typically begins in adolescence (Liebowitz, Gorman, Fyer, & Klein, 1985; Mannuzza, Fyer, Liebowitz, & Klein, 1990; Turner, Beidel, Dancu & Keys, 1986) or even childhood (Beidel, Turner, & Morris, 1999; Spence, Donovan, & Brechman-Toussaint, 1999). Since first impressions have a large influence on whether friendships are established, the current research investigated first impressions of socially anxious individuals. Social anxiety is often examined in analogue samples, which is what was used in the current study. My central thesis in the proposed work is that core features of the disorder impede the ability of socially anxious individuals to form accurate first impressions of

others. My second thesis is that characteristics of individuals with social phobia may impede the ability of their social partners to form accurate appraisals of them. First, the literature review begins by distinguishing three key factors that serve to maintain social anxiety, namely fear of negative evaluation, self-focused attention, and negatively biased information processing, and describes how they may influence first impressions. Next, the negative ways in which socially anxious individuals are viewed by their interaction partners and the possible mechanisms for this are highlighted. Finally, the literature on first impressions, with a particular emphasis on Biesanz's recently developed theoretical perspective, is reviewed.

Social Anxiety and its Effect on the Socially Anxious Individual

Fear of negative evaluation (FNE) is a core feature of social anxiety. For example, Asendorpf (1987) found higher levels of FNE in shy than nonshy individuals. Conversely, individuals high in FNE tend to be higher in social anxiety (Carleton, Collimore, & Asmundson, 2010; Hope, Burns, Hayes, Herbert, & Warner, 2010; Leary, 1983; Mattick, Peters, & Clarke, 1989; Stopa & Clark, 2001; Watson & Friend, 1969; Winton, Clark, & Edelman, 1995), even when comorbid depressive symptoms are controlled (Weeks et al., 2005). Furthermore, the Fear of Negative Evaluation scale discriminates socially anxious patients from patients with other anxiety disorders (Turner, Beidel, & Larkin, 1986) suggesting that FNE is an important feature of social anxiety disorder. This is supported by the fact that FNE has been strongly associated with high scores on the Social Phobia Scale and the Social Interaction Anxiety Scale, two well validated standardized measures of social anxiety (Mattick & Clarke, 1998). Higher levels of FNE are related to greater social anxiety symptom severity and persistence (Faytout et al., 2007). Along these lines, both Mattick and Peters (1988) and Mattick, Peters, and Clark (1989) found decreasing fear of negative evaluation in treatment for individuals with social anxiety to be the most significant cognitive mediator for improvements. Goldfried, Padawer, and Robins (1984) found highly socially anxious men placed greater importance on "chance of being evaluated"

when categorizing social situations, which suggests that FNE is an important element in the cognitive schema of socially anxious individuals. Furthermore, Kocovski and Endler (2000) found that FNE was a partial mediator of the relationship between self-esteem and social anxiety. Stein, Jang, and Livesley (2002) found moderate heritability for FNE and an association to social anxiety disorder related personality traits, such as anxiousness, submissiveness, and social avoidance. In addition,

An important area in FNE research is whether it is the probability or the impact of a negative social event that contributes to social anxiety. Lucock and Salkovskis (1988) demonstrated that relative to nonanxious controls, participants with generalized social phobia tend to overestimate the likelihood of negative events and underestimate the probability of positive events happening to them. Similarly, Amir, Foa, and Coles (1998) found that socially anxious individuals favoured negative interpretations over positive ones when appraising ambiguous social vignettes in the self-relevant condition. This finding was replicated by Gilboa-Schechtman, Franklin, and Foa (2000), who also found that the participants with social anxiety had a higher propensity to view the consequences of negative social events as more detrimental and expected to have more frequent and intense responses to positive social events as compared to controls. Specifically, they anticipated having more severe emotional distress and more visible physiological reactions to both positive and negative social events, and expected these negative reactions to have a longer duration than did controls. Other research has also found that socially anxious individuals anticipate more negative evaluation and more detrimental consequences (Foa, Franklin, Perry, & Herbert, 1996; Leary, Kowalski, & Campbell, 1988; Poulton & Andrews, 1996; Smith & Sarason, 1975; Stopa & Clark, 2000; Wilson & Rapee, 2005). Foa and Kozak (1985) contended that it is the estimated severe emotional toll of negative events that serves a greater role in the maintenance of social anxiety than the actual predicted probability of the negative events happening. In support of this theory, Edelman (1985) found that patients with

social anxiety did not believe they had the capacity to adequately cope with a negative or embarrassing social interaction. Working with a nonclinical sample, Rapee (1997) demonstrated that the degree of negative consequences to perceived social threat was a much stronger contributor to the participants' fear of negative evaluation, compared to the probability of negative evaluation occurring. McManus, Clark, and Hackmann (2000) found that participants with social anxiety did not anticipate higher probabilities of negative social events happening to them, but estimated the costs to be more detrimental, relative to participants with other anxiety disorders. Furthermore, Foa, Franklin, Perry, and Herbert (1996) demonstrated that cognitive-behavioural treatment focused on decreasing the subjective cost estimates of negative social interactions, as opposed to reducing the estimated probability of negative events occurring, served to mediate improvements in social anxiety, likely indicating that it is the subjective estimates of the impact of negative evaluation which mediates social anxiety. Therefore, this body of research lends support to the idea that individuals with social anxiety tend to experience greater FNE, likely due to their tendency to catastrophize the consequences.

It is important to understand why individuals with social anxiety anticipate such adverse consequences of negative evaluation. Gilboa-Schechtman, Franklin, and Foa (2000) demonstrated that participants with social anxiety were more inclined to expect to feel worthless after a negative social interaction, relative to non-anxious controls or individuals with obsessive-compulsive disorder. Compared to other anxiety disorders, individuals with social anxiety are also more prone to appraise these negative social events as reflecting their own negative personality traits and as having more adverse future implications for both their relationships and vocational opportunities (Stopa & Clark, 2000; Wilson & Rapee, 2005). Furthermore, these results were found to be independent from the effects of comorbid depression (Wilson & Rapee, 2005). FNE is relevant to the current work because one would expect that fear of negative evaluation might be greater in novel social encounters, result in heightened social anxiety, and

therefore affect the accuracy of first impressions of others due to features of social anxiety.

Secondly, social anxiety has been shown to be related to increased self-focused attention (Bögels, 2004; Feningstein, Scheier, & Buss, 1975; Mor & Winquist, 2002; Woody, 1996), and public self-awareness and self-consciousness (Feningstein, Scheier, & Buss, 1975; Hope & Heimberg, 1988; Saboonchi & Lundh, 1997). Bögels (2004) defines self-focused attention as "the process whereby attention is directed towards internal self-relevant stimuli" (p. 840). In her review of the research literature, Bögels (2004) concluded that self-focused attention was specific to high relative to low socially anxious individuals. Woody (1996) found self-focused attention was related to heightened anxiety before and during a speaking task. In a follow up study, objective judges unaware of the purpose of the experiment also rated the socially anxious group as more anxious when in the self-focused condition (Woody & Rodriguez, 2000). Bögels and Lamers (2002) found significantly higher levels of social anxiety for the self-focused attention condition than for the task-focused attention condition. Zou, Hudson, and Rapee (2007) found significantly higher levels of social anxiety in high blushing-anxious individuals then low blushing-anxious individuals when instructed to self-focus compared to task focus. Furthermore, it has been found that in social threat conditions, individuals with specific speech-related social phobia have heightened attention to internal versus external stimuli (Mansell, Clark, & Ehlers, 2003). Numerous studies have found self-focused attention to be strongly associated with increased social anxiety and negative self-evaluation, as well as poorer social performance (Spurr & Stopa, 2003; Stopa & Clark, 1993; Woody, 1996; Woody, Chambless, & Glass, 1997; Woody & Rodriguez, 2000). Moreover, social anxiety treatment outcome research has found that post-treatment reductions in self-focused attention to be related to decreases in anxiety (Harvey, Clark, Ehlers, & Rapee, 2000; Rodebaugh, 2004; Wells & Papageorgiou, 1998; Woody, Chambless, & Glass, 1997).

Self-awareness, a concept found in the social psychology literature, is defined as "a state:

the existence of self-directed attention, as a result of either transient situational variables, chronic dispositions, or both" (Feningstein, Scheier, & Buss, 1975, p. 522). Public self-awareness and public self-consciousness, which is most relevant to social anxiety, is defined as a state or trait tendency to be aware of oneself as the object of social scrutiny (Feningstein et al., 1975). Hope and Heimberg (1988) found high correlations between public self-consciousness and social anxiety. Furthermore, objective observers' ratings of poorer social performance were related to higher public self-consciousness scores as was an increase in negative self-related thoughts. Johnson and Glass (1989) also reported a strong, positive correlation between public self-consciousness and negative self-related thoughts. Jostes, Pook, and Florin (1999) found that public self-consciousness had a significantly stronger association with social anxiety than it did with panic disorder, obsessive-compulsive disorder, and bulimia nervosa. This strong association between public self-consciousness and social anxiety or fear of blushing has been replicated many times (Bögels, Alberts, & de Jong, 1996; Fenigstein, Scheier, & Buss, 1975; Saboonchi, Lundh, & Öst, 1999).

Self-focused attention (SFA) is postulated to disrupt the encoding of social information during social interactions (Clark & Wells, 1995; Duval & Wicklund, 1972; Schroeder, 1995). One such theory by Clark and Wells (1995) suggests that in social situations, individuals with social anxiety focus on evaluating and self-monitoring their internal bodily sensations, cognitions, and behaviours associated with their anxiety, occurring at the expense of attending to external social feedback. This in turn leads to negative self-appraisals regarding their social performance. Consistent with these speculations, Daly, Vangelisti, and Lawrence (1989) found that highly anxious individuals had poorer memories of external cues during a speech task and recalled having more self-focused and negative cognitions than did their low anxiety counterparts. This is turn was related to lower performance and self-evaluations. Mellings and Alden (2000) found that patients with social phobia tended to recall more negative self-related

information and less partner-related information than did controls following an interaction task. In line with this finding, Hope, Heimberg, and Klein (1990) found that participants with social anxiety were significantly less accurate in their recall of partner related information following a social interaction, as compared to the recalls of the control participants. Kimble and Zehr (1982) found that individuals low in self-consciousness were significantly better at recalling visual characteristics of speakers compared to participants high in self-consciousness. Furthermore, Vallacher (1978) found that participants in the increased self-awareness condition were significantly less able to discriminate characteristics of a stimulus person than individuals in the control condition. Specifically, they were significantly worse at discriminating regarding competence (clear-thinking, indecisive, competent, independent, mature, intelligent), activity (active, humorous, excitable, sociable, extroverted), and social value (timid, awkard, rigid, tense, dominant). Moreover, Pérez-López and Woody (2001) found that socially anxious individuals were less accurate than controls at recognizing the facial expressions paired with the faces they had seen prior to a speech task.

A somewhat inconsistent finding was reported by Perowne and Mansell (2002), who found that while individuals high in social anxiety reported higher SFA relative to controls, they were able to detect negative evaluations from others. In addition, a body of research has implicated threat focused attention in general (i.e., to both internal and external threat), rather than self-focused attention as the crucial contributor to social anxiety (Veljaca & Rapee, 1998; Winton, Clark, & Edelmann, 1995). For example, compared to non-socially anxious individuals, socially anxious individuals have enhanced recognition (Foa, Gilboa-Schechtman, Amir, & Freshman, 2000; Gonsalvez, & Gordon, 2004; Horley, Williams, Gilboa-Schechtman, Foa, & Amir, 1999; Lundh & Öst, 1996), and faster detection times for threat faces, but not for happy faces (Klumpp & Amir, 2009; Mogg, Philippot, & Bradley, 2002; Pishyar, Harris, & Menzies, 2004). After directing attention to the stimulus cue's spatial location, Asmundson and Stein (1994) found

faster response times for socially anxious patients when probes followed social threat cues, compared to neutral or physical threat cues. Controls, on the other hand, had equally fast response times for all three types of cues. In summary, although the literature on attention is not consistent as to direction of focus, both bodies of research (i.e., on SFA and external threat focus) provide evidence that social anxiety may interfere with accurate encoding of social information. If this is true, it may reduce the accuracy of socially anxious individual's first impressions of others, and consequently their ability to form new relationships.

The third facet of social anxiety is negatively biased processing of personal and social information. Clark and Wells (1995) suggested that when in threatening social evaluative situations, socially anxious individuals turn their attention internally and use the information they learn from self-monitoring to construct excessively negative images of the self and then use these negative self-images to make wrong inferences about how they are seen by others. According to Clark and Wells, taking an external view serves to reinforce the credibility of the self-image. This is now referred to as taking the observer perspective or seeing oneself from an external point of view. This is contrasted against taking the field perspective or "seeing the situation as if looking through out their own eyes" (Wells, Clark, & Ahmad, 1998, p. 631).

To date, research has supported the idea that individuals with social anxiety tend to use the observer perspective, at least when in anxiety-evoking social situations (Coles, Turk, Heimberg, & Fresco, 2001; Coles, Turk, & Heimberg, 2002; George & Stoppa, 2004; Hackmann, Clark, & McManus, 2000; Hackmann, Surawy, & Clark, 1998; Wells, Clark, & Ahmad, 1998). In turn, taking the observer perspective is associated with an increase in safety behaviours and negative self-related thoughts regarding poor social performance with an internal locus of control for these failures (George & Stoppa, 2004; Spurr & Stopa, 2003). Furthermore, the observer perspective has been implicated in the recall of previous high anxiety social situations (Coles, Turk, Heimberg, & Fresco, 2001). In support of this idea, Hackmann, Surawy,

and Clark (1998) found that compared to nonclinical controls, social phobic clients reported experiencing more negative self-imagery reflecting how they feared they appeared to others during a recent social situation. Semistructured interviews revealed that the content of the negative self-imagery tended to be related to either poor social performance or anxious symptoms or both, and tended to reflect a specific humiliating social experience occurring around the onset of the social anxiety (Hackmann, Clark, & McManus, 2000). Socially anxious individuals tend to overestimate the extent that their anxiety is apparent to others (Alden & Wallace, 1995; Bruch, Gorsky, Collins & Berger, 1989; McEwan & Devins, 1983). Experimental studies of self-imagery involve having socially anxious individuals hold either negative or neutral self-images in their minds during social interactions. Using this methodology, Hirsch, Clark, Mathews, and Williams (2003) found that the negative self-imagery condition led to increased anxiety, more visible symptoms of anxiety, and lower personal appraisals of their social performance compared to an assessor. These results were replicated using a non-clinical population with scores above 17 on the FNE (Hirsch, Meynen, & Clark, 2004). Hirsch, Mathews, Clark, Williams, and Morrison (2006) found low public-speaking anxious volunteers to be most anxious when holding negative self-images in mind, as opposed to positive or control self-images. Makkar and Grisham (2011) found that in the negative self-imagery condition, participants endorsed greater levels of anxiety, self-focused attention, and symptom visibility, as well as more negative cognitions, performance appraisals, and post-event processing. This self-imagery literature lends support to the idea that socially anxious individuals engage in negatively biased processing of social and personal information.

Negatively biased social information processing can also be seen in the tendency of socially anxious individuals to discount their social performance. Socially anxious individuals tend to display the reversal of the self-serving bias; specifically they attribute social performance successes to external factors and blame themselves for perceived social performance failures

(Alfano, Joiner, & Perry, 1994; Arkin, Appelman, & Burger, 1980; Bögels, Rijsemus, & De Jong, 2002; Bruch & Belkin, 2001; Coles, Turk, Heimberg, & Fresco, 2001; Coles, Turk, & Heimberg, 2002; George & Stopa, 2008; Girodo, Dotzenroth, & Stein, 1981; Hope, Gansler, & Heimberg, 1989; Johnson, Aikman, Danner, & Elling, 1995; Johnson, Petzel, & Johnson, 1991; Whitehead & Smith, 1995). Participants high in social anxiety in Spurr and Stopa's (2003) study rated their own social performance as significantly worse than their low social anxiety counterparts. Rapee and Lim (1992) found that individuals with social phobia had a significantly larger and more negative discrepancy between their own appraisals of their speaking performance in a speech task and an observer's ratings, than did nonclinical controls. Relative to assessors, socially anxious participants underestimate their positive behaviours and overestimate their negative behaviours (Clark & Arkowitz, 1975; Mansell & Clark, 1999; Mellings & Alden, 2000; Norton & Hope, 2001; Stopa & Clark, 1993). Following a similar methodology as Rapee and Lim, Alden and Wallace (1995) found that although confederates rated individuals with social phobia as more skilled in a positive feedback condition, these patients rated themselves as equally unskilled socially in both the positive and negative feedback conditions. Both Edwards, Rapee, and Franklin (2003) and Mellings and Alden (2000) found that participants with social anxiety tended to negatively ruminate following a social task and discounted their social performance the next day as well. Rachman, Grüter-Andrew, and Shafran's (2000) study indicated that this is common for socially anxious individuals to recurrently and intrusively ruminate about their negative performance after an anxiety provoking event and that this interferes with their ability to concentrate. Abbott and Rapee (2004) found that compared to the controls, not only did the individuals with social anxiety immediately rate their performance in a speech task as significantly worse than the objective raters, but they maintained the same negative appraisals one week later. During this time, the participants with social anxiety also engaged in a greater degree of negative rumination. The stability of their performance

discounting was contrasted against the nonclinical controls who rated their performance more positively one week later. With socially anxious individuals processing information negatively, it might call into question the accuracy of their appraisals of others in first impression situations.

A third body of studies demonstrating negatively biased processing involves detection and interpretation of facial expressions. Winton, Clark, and Edelmann (1995) found that individuals high in FNE, and consequently in social anxiety, assumed facial expressions were negative when lacking enough information to make an informed decision. Veljaca and Rapee (1998) found low socially anxious participants were more accurate at spotting positive faces and high socially anxious participants to be more precise at recognizing negative faces during a public speaking task. When Mogg, Philippot, and Bradley (2004) displayed either happy or angry faces paired with neutral faces for 500 ms, the patients with social phobia displayed selective attention for the angry faces compared to the control group. Pozo, Carver, Wellens, and Scheier (1991) found that individuals high in social anxiety interpreted facial cues as less accepting. As discussed above, relative to nonanxious controls, individuals with social phobia displayed faster detection times for angry faces than for happy faces in a crowd of otherwise neutral faces (Gilboa-Schechtman, Foa, & Amir, 1999). Furthermore, Veljaca and Rapee (1998) found that participants low in social anxiety were more accurate at detecting positive behaviours, while participants high in social anxiety had higher levels of accuracy for the detection of negative behaviours. Negative processing of social information would also likely have negative consequences in the accuracy of first impressions involving socially anxious individuals.

To summarize, the processes that maintain social anxiety, such as fear of negative evaluation, self-focused (or threat focused) attention, and negatively biased processing of social information, may impact how accurately they perceive others in first impression situations.

Social Anxiety and Social Responses

Social anxiety has been found to affect other people's responses to the socially anxious

individual (Franzois, 1983; Alden & Taylor, 2004; Taylor & Alden, 2010). Socially anxious individuals are perceived as odd (Barlow, 2002), less attractive and friendly (Jones & Russell, 1982), less effective leaders and with weaker strength of character (Purdon, Antony, Monteiro, & Swinson, 2001), and less likeable resulting in greater discomfort for their interaction partners (Meleshko & Alden, 1993). Creed and Funder (1998) found that partners of participants high in social anxiety expressed less interest and liking for them, engaged in less eye contact, talked at their partner instead of with them, dominated and controlled the interaction, and behaved in a more irritated manner. They also found that college peers described individuals high in social anxiety as vulnerable to threat, sensitive to demands, lacking personal meaning in life, and moody, compared to individuals low in social anxiety, whom they rated as assertive, ambitious, and socially poised. Heerey and Kring (2007) found that conversational partners of socially anxious students failed to experience the increase in positive affect found in partners of non-socially anxious students. Voncken, Alden, Bögels, and Roelofs (2008) found that patients with social phobia evoked negative emotions in their conversational partners, which led to lower perceived similarity, which in turn resulted in social rejection. Papsdorf and Alden (1998) also found a reduced liking for participants who appeared overtly anxious due to a decreased perception of similarity.

Contemporary cognitive models of social phobia highlight the role of safety behaviours, such as reduced eye contact, minimizing speaking, minimal self-disclosure, and unassertiveness, that are used by socially anxious individuals in an attempt to prevent feared outcomes and maintain a sense of safety (Alden & Taylor, 2004, Clark & Wells, 1995). Similar ideas are found in Arkin's (Arkin, Lake, and Baumgardner, 1986) self-protection theory, which posits that socially anxious individuals anticipate and fear negative social appraisals and therefore attempt to deflect attention on themselves by subduing their behaviour.

One way this is accomplished is by reducing self-disclosures (Meleshko & Alden, 1993;

Alden & Bieling, 1998; Papsdorf & Alden, 1998). However, this can be interpersonally problematic, as self-disclosure has been found to increase feelings of similarity and liking (Collins & Miller, 1994; Halverson and Shore, 1969; Jourard, 1959) and to serve as a good predictor of friendship development (Cohen, Sherrod, & Clark, 1986). Moreover, individuals who reciprocate a self-disclosure with a more superficial degree of intimacy are viewed as cold (Chaikin & Derlega, 1974), where as individuals that reciprocate with more intimate self-disclosures are more liked (Worthy, Gary, & Kahn, 1969). Socially anxious individuals are seen by their interaction partners as being less open and less willing to disclose personal information (Reno & Kenny, 1992). Work by Alden and her colleagues revealed that socially anxious individuals were less likely to reciprocate the self-disclosure of their conversational partners and therefore their partners were less likely to desire future contact with them (Alden & Bieling, 1998; Papsdorf & Alden, 1998). Furthermore, when they did reciprocate the self-disclosures, they were only moderate in intimacy, regardless of the level of intimacy of their partners' disclosures (Meleshko & Alden, 1993). Kashdan and Wenzel (2005) found that participants rated the lowest experience of closeness when they were in the mixed dyads of high and low socially anxious participants. The authors attributed this to the two groups' conflicting goals and perceptions with avoidance of social threat being the primary concern for socially anxious individuals whereas cooperation was the goal of individuals low in social anxiety. Gee, Antony, Koerner, and Aiken (2012) found that when a socially anxious actor disclosed an emotion, she was rated by observers as being less awkward and more socially skilled, compared to when she did not disclose any emotions. The type of emotion disclosed (anxiety, sadness, or happiness) did not matter. This study helps illustrate the positive effects that self-disclosure can have on how one is perceived. In summary, since self-disclosure is an essential component to developing friendships, the lack of self-disclosure in socially anxious individuals would likely have implications for how accurately they would be perceived in first impression situations.

This body of work signifies progress toward a more comprehensive examination of social anxiety's effect on social partners. However, extant research still does not adequately address the various ways that social interaction partners are affected by interactions with socially anxious individuals. More research is necessary to identify how socially anxious individuals are perceived by their interaction partners in first impression situations and the accuracy of those perceptions.

Person Perception

A central tenet of the current work is that first impressions are an important aspect of social interactions, as they help shape perceptions of others and influence desire for future interaction. First impression judgments have been a topic of considerable study (e.g., Cronbach's (1955) Components of Accuracy Model (CCAM) and Kenny's (1994) Social Relations Model (SRM)). Biesanz integrated and extended these early approaches in his Social Accuracy Model (SAM; Biesanz, 2010). In this model, Biesanz distinguishes two components of first impression judgments, namely normative and distinctive accuracy. *Normative accuracy* refers to the correspondence between a rater's appraisals of a target and the average self-ratings across targets, i.e., whether a rater views the target as similar to how people in general view themselves. *Distinctive accuracy* refers to the correspondence between the rater's appraisals and the target's self-appraisals with the normative rating controlled, i.e., whether the rater can detect how the target is distinct from the normative profile.

Using this approach, Human and Biesanz (2011a) found that better adjustment was associated with greater normative accuracy, i.e., better-adjusted raters appraised targets as similar to the average individual. However, adjustment had no effect on distinctive accuracy, i.e., the ability to recognize unique personality features of the target. The third finding was that better adjustment was associated with greater assumed similarity, i.e., well adjusted raters perceived the targets as more similar to themselves. Human and Biesanz's (2011b) found that well-adjusted

individuals conveyed more information regarding their less observable traits than did poorly adjusted individuals. This finding lends support to the theory that the higher self-other agreement that characterizes first impression judgments of well-adjusted individuals is due to their higher judgability; their ability to convey their unique attributes that are less observable.

Social Anxiety and First Impression Formation

The current study will apply Biesanz's model to the realm of social anxiety. The study has two goals: (1) to investigate how accurate socially anxious individuals are in forming first impressions of others and (2) to investigate the accuracy of the first impressions that others form of socially anxious individuals.

Following Biesanz, I distinguished two components of judgmental accuracy: normative and distinctive accuracy. Human and Biesanz (2011a) found increased normative accuracy for better-adjusted individuals. Furthermore, Alden and Wallace (1995) found that socially anxious participants were less accurate at evaluating their partners' performances than nonanxious controls. Therefore, I predicted that socially anxious perceivers will be less normatively accurate in their appraisals of targets than low anxious perceivers. Secondly, because social anxiety results in self-focused attention, which might detract from attention directed toward social partners, I hypothesized that socially anxious individuals will rate others less accurately in terms of distinctive accuracy.

The social anxiety literature highlights the fact that socially anxious individuals are viewed more negatively. Consequently, I predicted that perceivers' impressions of socially anxious targets will be less normatively accurate, specifically more negatively than the normative rating. Secondly, since Human and Biesanz (2011b) found that distinctive accuracy is highest for well-adjusted individuals due to their increased judgability and socially anxious individuals self-disclose less, I hypothesized that targets higher in social anxiety would be rated less accurately in terms of distinctive accuracy than targets lower in social anxiety.

2. Method

Participants

A total of 104 University of British Columbia undergraduates (81 females, 23 males, M_{age} = 19.76, *SD* = 1.57) participated in 16 groups in exchange for course credit or $10. The groups ranged in size from 3 to 10 people (Median = 6.50). The participants ranged between 1 to 5 years of post-secondary school education, M_{EDU} = 2.12, *SD* = 1.09. The majority of the sample was either of Asian or European descent (see Table 1). The participants were selected for participation through the human subject pool (see Appendix A) and through an advertisement handed out at the debriefing session of a separate study (see Appendix B).

Measures

Abbreviated Big Five Inventory (BFI; John & Srivastava, 1999). Following Biesanz, the abbreviated BFI was used to assess personality, the dependent variable, for both the perceivers and the targets (see Appendix C). The abbreviated BFI is a 21-item version of the original BFI. Following Biesanz, three additional items to assess intelligence were added on; *"Is intelligent", "Is bright",* and *"Receives good grades"*. Furthermore, 4 additional items from the original BFI were added to better assess negative personality traits; "Worries a lot", "Can be cold and aloof", "Can be moody", and "Gets nervous easily". Finally, the item "is likeable" was added on to examine the role that liking has on moderating accuracy. Each of these 28 items were rated on a seven point Likert scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*) (see Appendix B). Human, Biesanz, Parisotto, and Dunn (2011) found adequate reliability for each Big Five subscale using a large UBC undergraduate population (Extraversion, α = .83, Neuroticism, α = .73, Conscientiousness, α = .66, Agreeableness, α = .59, Openness/Intelligence, α = .67). The current study found comparable adequate reliability for each of the subscales (Extraversion, α = .84, Neuroticism, α = .77, Conscientiousness, α = .66,

Table 1.

Demographic Information for Participants.

Demographic Information	Percentage of Sample
Ethnicity	
East Asian	51
South East Asian	13
Hispanic	4
European (Caucasian)	26
Middle Eastern	6
First Language	
English	51
French	4
Spanish	2
East Asian language	31
South-East Asian language	6
Arabic	1
Farsi	5
Marital Status	
Single	98
Married	2

Agreeableness, α = .62, Openness/Intelligence, α = .66).

Situational Social Anxiety Item. To confirm that the level of state social anxiety was higher for participants with higher SIAS scores, an additional item was added to the BFI; "*Is nervous when interacting with strangers"* (see Table 2). Participants' scores on this item were correlated with the participants' scores on the SIAS and the IAS as a check on level of social anxiety in the social task. The situational anxiety item was also included in the calculations to assess normative and distinctive accuracy.

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). The SIAS (see Appendix D) was used to measure the predictor, level of social anxiety. This scale was selected because it reflects anxiety in social interaction. The SIAS is a 20-item scale, with each item rated on a five point Likert-type scale ranging from 0 (*not at all*) to 4 (*extremely*). The mean in the current study's sample (M = 26.43, SD = 13.64) was higher than the undergraduate mean reported for the SIAS, M = 19.00, SD = 10.10 (Mattick & Clarke, 1998), but was lower than the the clinical sample mean, M = 34.6, SD = 16.4 (Mattick & Clark, 1998). Mattick and Clarke (1989) found strong Cronbach's alphas (between .88 and .93), test-retest correlations over .90 at both one and three month intervals, and significantly higher scores on the SIAS for individuals with social phobia than for those with agoraphobia. Heimberg et al., (1992) found higher correlations between the SIAS and other measures of social interactional anxiety and lower correlations with other measures of performance fear compared to the Social Phobia Scale, indicating strong convergent and divergent validity. The current study replicated Mattick and Clarke 's (1989) findings demonstrating the strong internal consistency of the SIAS of (α = .91).

Interaction Anxiousness Scale (IAS; Leary, 1983). The IAS was used to measure the affective component of social anxiety, or in other words, the tendency to feel nervous in social interactions (see Appendix E). The IAS is a 15-item scale, with each item rated on a five point

Table 2.

Means and Standard Deviations of Social Anxiety Measures.

Social Anxiety Measure	Mean	Standard Deviation
SIAS	26.43	13.64
IAS	38.20	10.46
BFI Situational Social Anxiety Item	4.07	1.76

Note. The SIAS was on a 0-4 scale, the IAS was on a 1-5 scale, and the BFI Situational Social Anxiety Item was on a 1-7 scale.

Likert-type scale ranging from 1 (*not at all)* to 5 (*extremely characteristic)*. The mean for the current study's sample (M = 38.20, SD = 10.46) was very close to the undergraduate sample means for the IAS, which range from M = 38.60, SD = 10.50 to M = 40.60, SD = 10.00 (Leary & Kowalski, 1993). Leary and Kowalski (1993) reported interitem reliability above .85 and test-retest reliability of .80 at eight weeks. Furthermore, using an undergraduate sample, a strong and significant correlation of .82 was found between the SIAS and the IAS (Heimberg et al., 1992). This scale was added to the study after 9 participants had participated. The current study found that the IAS also demonstrated strong internal consistency (α = .89).

Procedure

The procedures are based on Biesanz's previous work (SAM; Biesanz, 2010). When participants first entered the laboratory, the experimenter described the procedures and emphasized that everyone had the right to withdraw from participation at any point without penalty. Participants then read and signed the informed consent forms (see Appendix F) and were given a second informed consent form (see Appendix G) for which they had the option to pass along to a close family member or friend for an additional component of the study.[1] Participants completed the abbreviated BFI evaluating themselves. Next, the experimenter paired participants in a predetermined order and instructed them to interact with their social partner for three minutes. After the three minutes, participants independently completed the abbreviated BFI evaluating his or her social partner. This process was repeated until every participant had interacted with every other participant. At this point, participants were asked to fill out the SIAS and the IAS about themselves. This questionnaire was given after the interactions so as not to prime the participants to focus on social anxiety symptoms. Finally, the participants were verbally debriefed and given a debriefing form (see Appendix H) for pedagogical purposes. Any informants that participated were also emailed a debriefing form (see Appendix I).

Data Analysis

The statistical analysis used for the current study is multilevel modeling (MLM). Following Biesanz's (2010) social accuracy modeling procedures, two multilevel regression models were examined, each with two predictors of perceiver impressions. The first was the distinctive accuracy measure, in other words, the target's self report after subtracting the mean self-report for the item. The second predictor was the normative accuracy measure, which is the mean target self-report on each item. The following describes how each perceptual tendency is allowed to vary randomly across perceivers and targets:

$$Y_{ijk} = \beta_{0ij} + \beta_{1ij} TVal_{jk} + \beta_{2ij} Mean_k + \varepsilon_{ijk} \quad (1.1)$$

$$\begin{aligned} \beta_{0ij} &= \beta_{00} + \beta_{01} Anx_i + u_{0i} + u_{0j} \\ \beta_{1ij} &= \beta_{10} + \beta_{11} Anx_i + u_{1i} + u_{1j} \\ \beta_{2ij} &= \beta_{20} + \beta_{21} Anx_i + u_{2i} + u_{2j} \end{aligned} \quad (1.2)$$

In this model, Y_{ijk} corresponds to Perceiver *i*'s rating of Target *j* on item *k*. The intercept is represented by β_{0ij}. β_{1ij} is the regression coefficient for the distinctive accuracy slope or the relationship between Target *j*'s self-report on item *k* predicting Perceiver *i*'s rating of them on the same item *k,* with the normative profile (the mean target self-report for item *k*; $Mean_k$) partialled out. Therefore, β_{1ij} corresponds to distinctive accuracy, or the extent to which a target's unique personality features predict the perceiver's ratings of that target. $TVal_{jk}$ represents Target *j*'s self-report on item *k*. β_{2ij} is the regression coefficient for the normative accuracy slope, or the relationship between the mean target self-report for item *k* predicting Perceiver *i*'s rating of the same item *k*. Therefore, β_{2ij} corresponds to normative accuracy, or the degree to which the average self-report predicts a perceiver's ratings of targets on average.

Within the equations 1.2, Anx_i is a measure of Perceiver *i*'s social anxiety. In the equation for β_{1ij}, β_{11} represents the regression coefficient for anxiety moderating distinctive

accuracy. Likewise, in the equation for β_{2ij}, β_{21} represents the regression coefficient for anxiety moderating normative accuracy. Here, negative values for β_{11} and for β_{21}, reported as *b*'s, would suggest greater distinctive and normative accuracy respectively for perceivers lower in social anxiety. In both equations, u_{1i} and u_{2i} represent perceiver random effects and u_{1i} and u_{2i} represent target random effects.

Due to the round-robin design, both distinctive and normative accuracy (in 1.1 and 1.2) are averaged across perceivers and targets. For example, an individual with high levels of normative accuracy perceives the different targets he or she meets on average as similar to the normative profile. A related example would be an individual with high levels of distinctive accuracy. Across all the targets he or she meets, the perceiver on average has a high level of distinctive agreement with the target's self-rating.

Following Biesanz's social accuracy modeling statistical procedures, two multilevel regression models were conducted. The first analysis used the perceiver's level of social anxiety as a moderator of distinctive and normative accuracy. The second analysis used the target's level of social anxiety as a moderator of distinctive and normative accuracy. The normative accuracy index was calculated by predicting the perceiver's score from the mean target self-report on each item. The distinctive accuracy measure was calculated by predicting the perceiver's rating of the target on each item from the target's self-report for each item, controlling for the mean score across target self-ratings. Because distinctive and normative accuracy are estimated simultaneously, we are able to look at the independent associations between social anxiety and distinctive and normative accuracy. *R*'s Ime4 was the statistical package used to conduct these analyses.

Further, to assess whether the social task did indeed evoke greater state social anxiety in participants with higher SIAS scores, ratings on the state social anxiety question on the BFI were correlated with the SIAS and the IAS.

3. Results

Social Anxiety Measurement

The participants' scores on the SIAS and IAS had a strong, significant correlation (r =.92, $p < .001$), indicating that they are targeting the same features of social anxiety in interactions. This is in line with Heimberg et al.'s, (1992) finding of a correlation of .82 between the two measures. Furthermore, the situational social anxiety item on the BFI that the participants filled out had a significant positive correlation with the participants' scores both on the SIAS ($r = .67$, $p < .001$) and on the IAS ($r = .65$, $p < .001$). In other words, participants who endorsed higher levels of trait social anxiety also generally endorsed experiencing greater levels of state social anxiety in the round robin social interactions while they evaluated others and were evaluated themselves. This is important because the current design required socially anxious participants to have heightened levels of social anxiety in the experiment in order to fully assess how social anxiety impacts accuracy. The SIAS, the IAS, and the BFI situational social anxiety item all had normal distributions.

Mean Levels and Variability in Accuracy

Overall, participants displayed significant levels of both normative, $b = .92$, $z = 21.63$, $p < .001$, and distinctive accuracy, $b = .12$, $z = 5.28$, $p < .001$ (see Table 3). This means that perceivers tended to view targets as being highly normative and were also able to identify the unique characteristics of targets.

Perceiver's Level of Social Anxiety as a Moderator of Accuracy

Perceivers higher in social anxiety did not display significantly less normative accuracy than perceivers lower in social anxiety, all |z|'s ≤ 0.40 (see Table 4). In other words, higher levels of perceiver social anxiety did not result in viewing the target as less similar to the average personality profile. Furthermore, perceivers high in social anxiety did not display significantly less distinctive accuracy than perceivers lower in social anxiety, all |z|'s $\leq$ 0.75. This means that

Table 3.

Initial Multilevel Model of Accuracy Without Moderators.

Model Parameters	
Fixed effects slopes (unstandardized)	
Normative Accuracy	.92**(.043)
Distinctive Accuracy	.12**(.022)

Note. All measures were on 1-7 scales. Intercept and target random effects were also modeled but are not presented. * $p < .05$. ** $p < .001$.

Table 4.

Target Anxiety Moderating Accuracy.

Model	Normative Accuracy			Distinctive Accuracy		
Parameters	*b*	(se)	*d*	*b*	(se)	*d*
SIAS (perceiver)	.001	(.348)	.05	-.001	(.045)	-.30
IAS (perceiver)	-.001	(.348)	-.09	-.000	(.045)	-.18
SIAS (target)	.000	(.215)	.02	-.004**	(.202)	-.57
IAS (target)	-.002	(.215)	-.21	-.006**	(.202)	-.61

Note. The SIAS was on a 0-4 scale and the IAS was on a 1-5 scale. All variables were grand mean centered. Standardized effect sizes, *d*, were calculated as the change in the respective slope for a 2 standard deviation change in the measure of social anxiety divided by the random effect standard deviation for that slope, τ (see Gelman, 2008). *$p < .05$, ** $p < .001$.

higher levels of perceiver social anxiety did not contribute to a reduced ability to identify the target's distinctive personality characteristics.

The results also indicated that targets higher in social anxiety were not rated with significantly less normative accuracy, all |z|'s ≤ 0.83. Thus, targets' levels of social anxiety did not lead them to be viewed as less similar to the average personality profile. However, targets higher in social anxiety were viewed with significantly less distinctive accuracy, all |z|'s ≥ 2.70. Therefore, perceivers were significantly more accurate in identifying the distinctive personality characteristics of targets with lower levels of social anxiety relative to targets with higher levels of social anxiety (see Figures 1 and 2).

There was a marginal significant interaction for gender and normative accuracy on the SIAS, but not on the IAS, b_{SIAS} = -.12, z_{SIAS} = -1.90, p = .05; b_{IAS} = -.10, z_{IAS} = -1.51, p = .13, with women being seen with less normative accuracy. However, gender did not interact significantly with distinctive accuracy, all |z|'s ≤ 1.41, and target level of social anxiety was still a significant moderator of distinctive accuracy when gender was controlled for, all |z|'s ≥ 2.63. Age did not significantly interact with normative, all |z|'s ≤ 0.92, or distinctive accuracy, all |z|'s ≤ 1.55, and the effects of target level of social anxiety moderating distinctive accuracy were still significant when age was controlled for, all |z|'s ≥ 2.84. To examine whether ancestry had any effect, the data was dummy coded into the two main demographic groups: European (Caucasian) and Asian (East and South-East). There were no significant interactions with European descent and normative, all |z|'s ≤ 0.55, or distinctive accuracy, all |z|'s ≤ 0.88. Similarly, there were no significant interactions with Asian descent and normative, all |z|'s ≤ 0.41, or distinctive accuracy, all |z|'s ≤ 0.19. Moreover, the moderating effect of target anxiety on distinctive accuracy still held when ancestry was controlled for all |z|'s ≥ 2.38.

Furthermore, "liking" was not related to distinctive accuracy, all |z|'s ≤ 0.52, but did

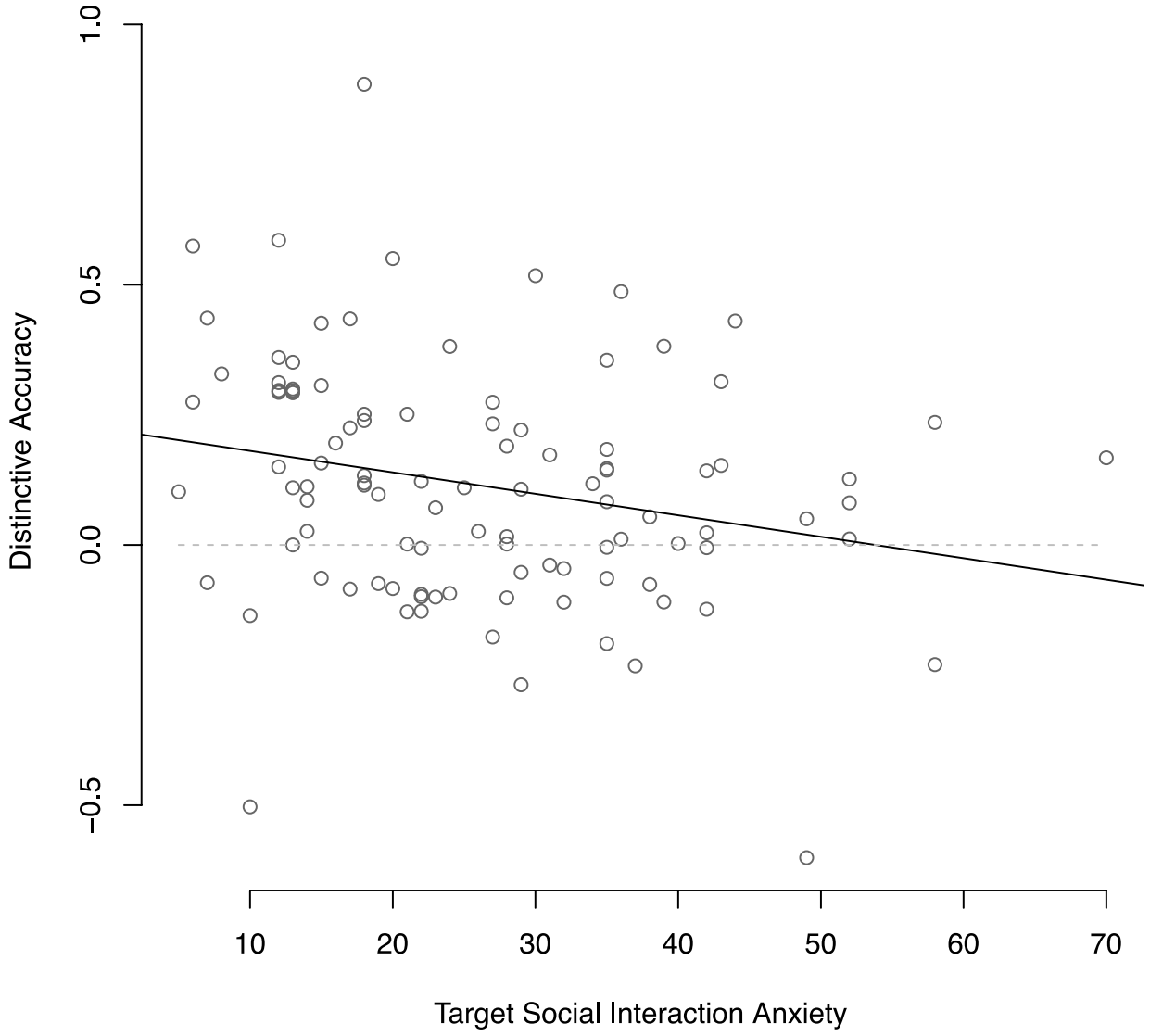

Figure 1. Target distinctive accuracy as a function of target anxiety (SIAS).

Plotted points represent ordinary least squares (OLS) estimates of targets' distinctive accuracy slopes, averaged across perceivers. The graphed lines are the model-implied linear relationship from the extended social accuracy model of interpersonal perception.

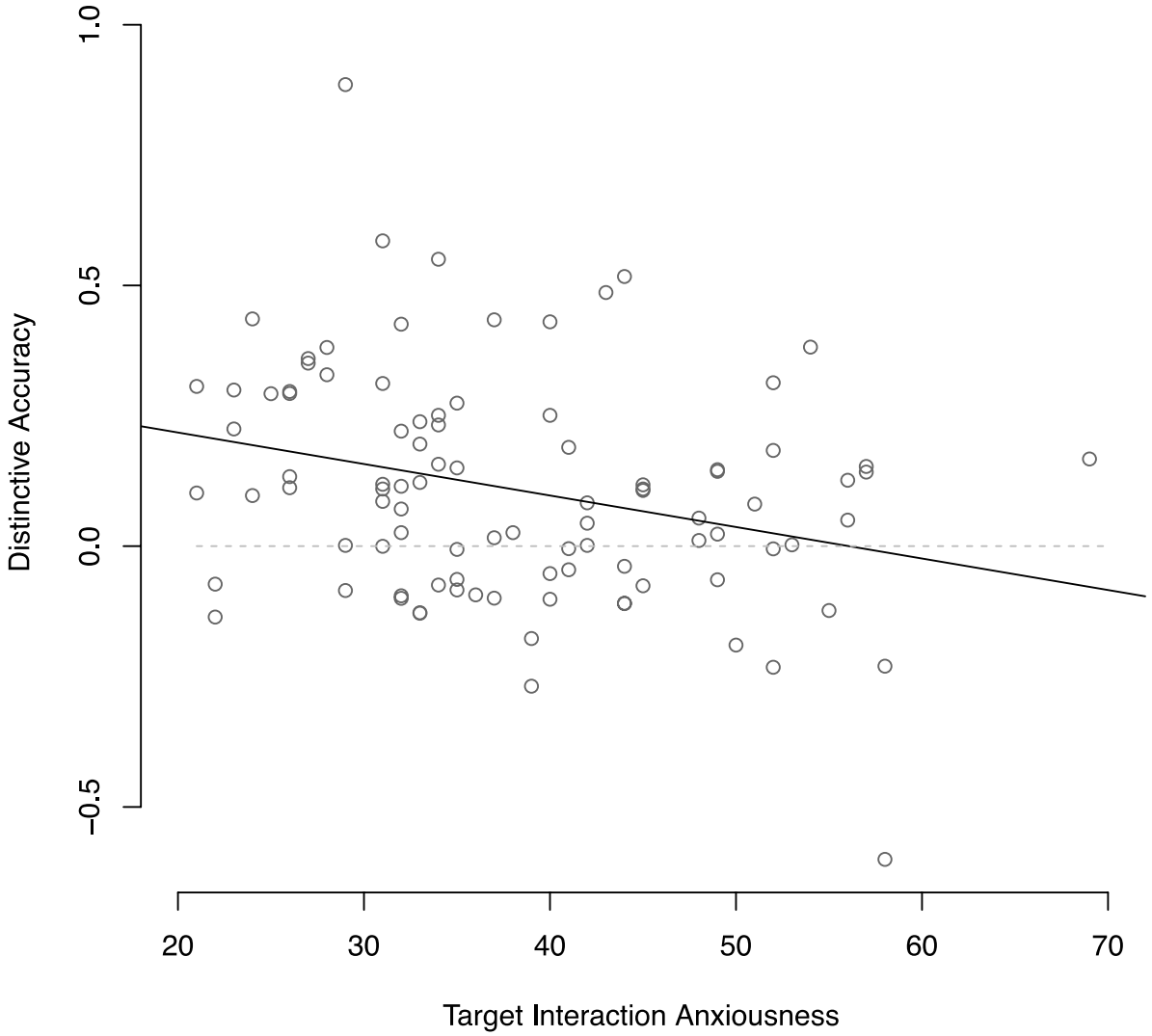

Figure 2. Target distinctive accuracy as a function of target anxiety (IAS).

Plotted points represent OLS estimates of targets' distinctive accuracy slopes, averaged across perceivers. The graphed lines are the model-implied linear relationship from the extended social accuracy model of interpersonal perception.

have a significant positive relationship with normative accuracy, all |z|'s ≥ 13.19, such that targets more liked by the perceivers tended to be seen as more similar to the average person. However, when liking was held constant, target level of social anxiety was still a significant moderator of distinctive accuracy, all |z|'s ≥ 2.88. Furthermore, liking was not significantly related to the targets' levels of social anxiety, r_{SIAS} = -.10, p = .34; r_{IAS} = -.17, p = .11. Moreover, perceiver's level of social anxiety was not significantly related to their liking of others, r_{SIAS} = .04, p = .68; r_{IAS} = .04, p = .68.

Finally assumed similarity, as measured by perceivers' perceptions of their similarities to the targets, had a significant negative association with perceiver's level of social anxiety, such that higher levels of perceiver social anxiety corresponded to lower levels of assumed similarity with the target, all |z|'s ≥ 2.45. However, assumed similarity was not associated with target's level of social anxiety, all |z|'s ≤ 0.72, and target level of social anxiety was still a significant moderator of distinctive accuracy when assumed similarity was held constant, all |z|'s ≥ 2.42.

Target Level of Social Anxiety and the Big Five

Participants higher in social anxiety rated themselves as being significantly lower in extraversion, all |z|'s ≥ 2.76, and higher in neuroticism, all |z|'s ≥ 5.82, as compared to participants lower in social anxiety. Perceivers also perceived participants higher in social anxiety as significantly less extraverted, all |z|'s ≥ 2.86, and significantly more neurotic, all |z|'s ≥ 2.94, than participants lower in social anxiety. However, socially anxious participants rated themselves as significantly lower in openness/intellect, all |z|'s ≥ 2.24, and agreeableness, all |z|'s ≥ 2.45, as well as marginally lower in conscientiousness, b_{SIAS} = -.01, z_{SIAS} = -1.92, p = .06; b_{IAS} = -.02, z_{IAS} = -1.74, p = .09. This was in contrast to perceivers, who rated individuals high and low in social anxiety as equal in openness/intellect, all |z|'s ≤ 0.91, agreeableness, all |z|'s ≤ 0.56, and conscientiousness, all |z|'s ≤ 0.79.

4. Discussion

The current study examined the role that social anxiety plays in moderating accuracy in first impressions situations. This was looked at in two ways. Firstly, the current study looked at how accurately individuals with social anxiety perceive others in first impression situations. Secondly, the present study also explored how accurately others perceive individuals with social anxiety in first impression interactions. Using a round robin methodology, these two research questions were examined. The results indicated that the participants were less distinctly accurate in their first impressions of individuals high in social anxiety. In other words, people are less accurate at identifying the unique personality features of highly socially anxious individuals. These findings may provide a lead as to why individuals with social anxiety have difficulties forming friendships.

The current study examined the two research questions using Biesanz's Social Accuracy Model (SAM; Biesanz, 2010), which distinguishes between two types of accuracy in first impressions; normative and distinctive accuracy. *Normative accuracy* refers to the association between a rater's appraisals of a target and the average self-ratings across targets. In other words, normative accuracy represents the extent to which a rater views the target as similar to how people in general view themselves. *Distinctive accuracy* refers to the relationship between the rater's appraisals and the target's self-appraisals, while partialing out the normative rating. This corresponds to the degree to which the rater can detect how the target is distinct from the normative profile. To establish these accuracy coefficients, the current study followed Biesanz's line of research and implemented a round robin methodology. Every participant interacted with every other participant for 3 minutes and then appraised his or her personality.

My first research question was how do perceivers' levels of social anxiety moderate the accuracy of their appraisals of others in first impression situations. My first hypothesis was that perceivers high in social anxiety would be less normatively accurate in their appraisals of targets,

compared to perceivers low in social anxiety. The current study's findings did not support this hypothesis. There were no significant differences in normative accuracy between perceivers high and low in social anxiety. This means that participants high in social anxiety tended to see the targets as similar to the average personality profile to the same degree as participants low in social anxiety. My second hypothesis was that individuals high in social anxiety would be less distinctly accurate in their first impressions of targets, compared to perceivers low in social anxiety. The current study's findings also failed to support this. In other words, individuals high in social anxiety were as equally accurate as participants low in social anxiety at identifying the targets' unique personality features. All together, the present study's findings indicate that how anxious you are doesn't seem to affect your accuracy in your judgments of others personalities. These findings are consistent with some previous research. Rapee and Lim (1992) found no significant differences between socially anxious participants and nonclinical controls in their appraisals of others' speeches. Furthermore, Stopa and Clark (1993) found that socially anxious individuals did not differ significantly from anxious and nonclinical controls in their appraisals of a confederate's behaviour.

Some may argue that these findings appear to be inconsistent with the results of some previous research. Pozo, Carver, Wellens, and Scheier, (1991) found that socially anxious participants rated others more negatively. However, this was based on their ratings of how they anticipated others would respond to them. The present study only looked at how socially anxious perceivers appraised others' personalities. It is possible that no negative bias was found due to the fact that the questions were worded to only assess their appraisals of their partners' personalities and not their appraisals of how their partner would respond to them. In support of this hypothesis, it has been demonstrated that socially anxious individuals endorse a greater degree of socially prescribed perfectionism, which means they anticipate that others hold unrealistically high expectations of them (Antony, Purdon, Huta, & Swinson, 1998). It has also

been found that socially anxious individuals expect their audiences to hold them to a higher standard than their own personal standards (Alden & Wallace, 1991; Wallace & Alden, 1991; 1995; Alden, Bieling, & Wallace, 1994; Moscovitch & Hofmann, 2007; Strauman, 1989, 1992; Weilage & Hope, 1999) and view others as holding unreasonably high expectations for their performance, particularly when standards are ambiguous (Moscovitch & Hofmann, 2007). It would make sense that if someone were to expect that others hold them to unrealistic standards they didn't feel they could meet, they might anticipate that their partners would have a negative response to them. Therefore, the current study's findings don't necessarily contradict Pozo et al.,'s results.

The present findings were also inconsistent with Alden and Wallace's (1995) research, which found that socially anxious participants had a positive bias in their evaluations of their partners' performance, compared to nonanxious controls and the experimenter. However, this study examined the valence, not the accuracy, of participants' appraisals of their interaction partners, which may explain the discrepancy from the current study's findings. A second point to note is that Alden and Wallace's study had participants evaluating the experimenter's responsiveness to them on four items. Given that personalities are inherently complex, it is hard to get a full appraisal of someone's personality from four items, which is why the current study used 29. Once again, it is possible that this positive bias is a result of socially anxious individuals anticipating how their partners may react to them, compared to the current study, which had participants only assessing their partners' personalities with no reference to how their partners feel about them.

Therefore, although the current study's results may appear to be inconsistent with the literature, it is likely more a matter of looking at two different things; how people expect others to respond to them and what people expect of others' personalities. When there is evidence of bias, it is in judgments of others' responses to oneself, not about others themselves. Furthermore,

the novel aspect of the current research is that it examined actual interactions between participants, compared to the previous work, which has used vignettes, videotapes, or lab interactions with confederates. By using real spontaneous interactions, the current study was able to get a more accurate sense of how people perceive targets, not how they anticipate they would perceive a target. Moreover, by using multiple perceivers and targets, the present study was able to paint a clearer picture of how others are perceived.

One interesting finding from the present study was the significant, negative association between assumed similarity and perceiver's level of social anxiety. This means that greater levels of social anxiety in the perceiver were associated with lower levels of assumed similarity with the target. These findings are congruent with the previous literature on assumed similarity. For example, the identification-contrast model of social comparison (Buunk & Ybema, 1997) states that membership in a social group creates stress, to which most people respond by making social comparisons. Typically, people distance themselves from undesirable targets to feel better about themselves. However, individuals who experience elevated levels of negative affect do the opposite and distance themselves from desirable targets to confirm their negative self-images (Giesler, Josephs, & Swann, 1996; Swann, Wenzlaff, Krull, & Pelham, 1992). This dysfunctional pattern of social comparisons has been demonstrated with mildly depressed participants (Swallow & Kuiper, 1992), with cancer patients high in neuroticism (Van der Zee, Buunk, & Sanderman, 1998), and with students high in negative affect (Lane & Gibbons, 2007). Based on this body of research looking at negative affect and social comparisons, the present finding of a negative association between level of perceiver social anxiety and assumed similarity makes sense.

Perceived similarity, on both important and superficial features, has been associated with liking, understanding, trust, appreciation, and support (Byrne, 1961; Jones & Daugherty, 1959; Jones, Pelham, Carvallo, & Mirenberg, 2004; Miller, Downs, & Prentice, 1998; Papsdorf &

Alden, 1998; Schneider, Goldstein, & Smith, 1995), a concept known as implicit egotism (Pelham, Mirenberg, & Jones, 2002). Therefore it makes sense that the current study found that targets more liked by the perceivers were seen as more similar to the average person. One explanation for this strong association between liking and assumed similarity is that people perceive themselves favourably and consequently assume others who are similar share their desirable qualities (Pelham, Carvallo, & Jones, 2005). Conversely, people with differing traits are perceived as threatening (Liao, Joshi, & Chuang, 2004) and induce feelings of mistrust, suspiscion, and reduced liking (Suman & Sethi, 1985; Tanis & Postmes, 2005). Research has found that neurotic people have a heightened sensitivity to perceived threats (Bradley & Mogg, 1994; Calvo & Eysenck, 2000; Derryberry & Reed, 1998; Richards, French, Johnson, Naparstek, & Williams, 1992) and that dissimilarities are normally equated with reflecting a potential source of threat (Tanis & Postmes, 2005). In line with this, Moss, Garivaldis, and Toukhsati (2007) found that neurotic participants rated themselves as more dissimilar to targets on measures reflecting extraversion and openness to experiences. Gibbons and Buunk (1999) found that social anxiety was positively associated with engaging in social comparisons and Kashdan and Wenzel (2005) found that participants endorsed experiencing the lowest levels of closeness when partners' levels of social anxiety were discrepant. Heimberg, Acerra, and Holstein (1985) found that participants tended to rate themselves as more similar to partners who matched their level of social anxiety and that socially anxious participants expected everyone to rate them as anxious, but expected their anxiety to be more salient to those they rated as dissimilar. Both Voncken, Alden, Bögels, and Roelofs (2008) and Papsdorf and Alden (1998) found that socially anxious participants were viewed with less assumed similiarity. Antony, Rowa, Liss, Swallow, and Swinson's (2005) findings indicated that socially anxious participants focused more on social anxiety dimensions when comparing themselves to others. The authors also found that socially anxious participants saw others as slightly less similar, although these differences disappeared

when averaged across all types of comparisons, and also felt less close to others. Although they didn't look at social anxiety independently, Human and Biesanz (2011a) extended these findings by controlling for actual similarity and by looking at perceivers' assumed similarity appraisals across multiple, real interaction partners, instead of hypothetical partners. They found that well-adjusted individuals view others as more similar to the self, compared to less-adjusted individuals. Therefore, the current findings that individuals with lower levels of social anxiety endorsed greater assumed similarity with the targets fits in well with the previous body of research.

The second research question explored in the present study was how do others perceive targets high in social anxiety. My first hypothesis was that perceivers would be less normatively accurate, and specifically more negative, in their impressions of targets high in social anxiety. The current findings do not support this hypothesis. It appears that others view socially anxious targets as similar to the average person. These findings appear to be inconsistent with the literature on socially anxiety, which finds that others have distinct negative perceptions of socially anxious targets. Barlow (2002) found that socially anxious participants were viewed as odd, and Jones and Russell (1982) found them to be viewed as less attractive and friendly. Purdon, Antony, Monteiro, and Swinson's (2001) findings indicated that socially anxious participants were seen as less effective leaders with weaker strength of character, and Heerey and Kring (2008) found that social partners failed to experience an increase in positive affect following interactions with socially anxious participants. The current study did not look at these variables so it is possible that these are the dimensions on which socially anxious people are viewed more negatively compared to the average person. Consequently, this may explain the lack of negative bias found for social partners in the present study. Creed and Funder (1998) also found that the social partners of socially anxious individuals engaged in less eye contact, talked at, instead of with, their partner, dominated and controlled the conversation, and engaged in

irritable behaviour. The current study did not assess how social partners personally experienced the interaction, but instead focused on how accurately they perceived their partners. It is therefore possible that the social partners of participants high in social anxiety also experienced this negative experience during their interactions.

A common finding in the social anxiety literature is that socially anxious people are viewed as less likeable by their interaction partners demonstrated by a reduced desire to interact with them in the future (Creed & Funder, 1998; Meleshko & Alden, 1993; Papsdorf & Alden, 1998; Voncken, Alden, Bögels, & Roelofs, 2008). Interestingly, the current study did not find any association between the targets level of social anxiety and the degree they were liked by their social partners. One possible reason for this difference may be due to the emphasis of previous research on desire for future interaction, compared to the current study which looked at judgments of liking. A second possible source for the difference in findings is the current study's round robin methodology. By having each participant interact with and rate every other participant, we were able to generate a much greater variety of targets and perceivers for each target, compared to interactions with confederates (Meleshko & Alden, 1993; Papsdorf & Alden, 1998; Voncken, Alden, Bögels, & Roelofs, 2008) or multiple interactions with one other participant (Creed & Funder, 1998). Therefore, it is possible that the current study's lack of a negative association between liking and target level of social anxiety is due to this novel methodology.

My second hypothesis was that targets higher in social anxiety would be rated with less distinctive accuracy than targets lower in social anxiety. The current findings support this. Interestingly, others could not judge the unique elements of the personalities of participants high in social anxiety. This new finding meshes well with the literature on self-disclosures. Specifically, it has been found that socially anxious individuals are perceived by their social partners as being less open and less willing to disclose personal information (Reno & Kenny,

1992). Socially anxious individuals are less likely to reciprocate the self-disclosures of their interaction partners (Alden & Bieling, 1998; Papsdorf & Alden, 1998), and when they do reciprocate, the self-disclosures are only of moderate intimacy, regardless of the level of intimacy expressed by their partners' self-disclosures (Meleshko & Alden, 1993). Furthermore, socially anxious participants are rated as being less awkward and more socially skilled when they self-disclose an emotion (Gee, Antony, Koerner, & Aiken, 2012). Given the research demonstrating that socially anxious individuals self-disclose less often and less intimately, it makes sense that the current study found that perceivers were less accurate at identifying the unique personality traits of socially anxious targets.

Self-disclosures have been found to increase feelings of similarity and liking (Collins & Miller, 1994; Halverson and Shore, 1969; Jourard, 1959). Therefore, one possible reason that socially anxious individuals may be less open is because, as was shown in the current study, they see others as less similar to themselves, and consequently as more threatening. This negative cycle may help explain why socially anxious individuals self-disclose less, see others with less assumed similarity, and why partners are less accurate at identifying their unique personality traits.

Furthermore, Human and Biesanz (2011b) found that well-adjusted individuals had higher judgability. In other words, well-adjusted individuals were significantly better than poorly adjusted individuals at conveying more information regarding their less observable traits (i.e., neuroticism). This finding is congruent with the social anxiety literature; socially anxious individuals self-disclose less and as a result, likely convey less information about their traits that are less observable. This further supports the current study's findings that partners are less able to detect the distinct personality features of socially anxious participants, suggesting that socially anxious individuals have reduced judgability. Moreover, one novel aspect of the present study was that it looked not at how socially anxious people are perceived, but at how *accurately* they

are perceived in first impression situations, and it appears that others can not get a clear picture of them.

The current study has several possible implications for understanding socially anxious individuals. First impressions are important determinants of whether others will want to interact again in the future. Human, Sandstrom, Biesanz, and Dunn (in press) found that more accurate first impressions significantly predicted more interaction throughout the semester as well as enhanced liking and desire for future interactions. Given that the unique personality features of socially anxious individuals are not perceived very accurately by others in first impression situations, it is likely that others will have a harder time understanding them and consequently, may have less of a desire to engage in future interactions with them. Therefore, perhaps socially anxious individuals should be encouraged to drop their self-protective behaviours such as reduced self-disclosures via behavioural experiments in order to learn to be more expressive of who they are. This might help their interaction partners more accurately understand them in first impression situations which may lead to an increase in interactions and more success developing and maintaining friendships. This would be an important avenue for future research.

Interestingly, analyses showed that socially anxious participants rated themselves and were rated by perceivers as being lower in extraversion and higher in neuroticism. Furthermore, socially anxious participants rated themselves as significantly lower in openness/intellect, agreeableness, and conscientiousness, where as perceivers did not. This raises the question that if socially anxious individuals view themselves as possessing negative personality traits, would greater perceiver distinctive accuracy be beneficial for them or detrimental? Swann and colleagues found that people attempt to modify their behaviour in hopes of eliciting information that accurately verifies their self-views, even if those views are negative (Swann & Hill, 1982; Swann, Pelham, & Krull, 1989; Swann & Read, 1981a, 1981b). Furthermore, one's sense of authenticity is increased when receiving self-verifying information, which has been associated

with enhanced well-being (Sheldon & Kasser, 1995; Sheldon, Ryan, & Reise, 1996; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). Therefore, preliminary research seems to indicate that being seen accurately is important to a target for their own adjustment, even if they are seen negatively. However, future research should further examine the implications of negative but accurate first impressions for both the perceiver and for subsequent friendship development.

Secondly, since the present study found that perceiver's level of social anxiety was negatively associated with perceived similarity, which in turn has been associated with openness and liking, perhaps social anxiety treatments need to focus on helping the clients recognize similarities they have with others. It is possible that if socially anxious individuals perceive others as more similar, they may feel more comfortable self-disclosing to their partners which in turn may help their partners get a better understanding of their distinctive personality features.

One of the limitations of the current study was that accuracy could only be correlated with the abbreviated BFI as a whole, not each individual factor. Since the round robin methodology requires that the participants fill out the BFI many times, it would take too long to use the full BFI, which is why the current research, as well as the body of research by Biesanz, used the abbreviated version. However, only a few items in the abbreviated BFI represent each factor so there would not be enough power if each factor were to be correlated to accuracy individually. Consequently, the present study was not able to determine that one dimension corresponded more to normative or distinct accuracy compared to another.

A second limitation of the current study is that it is possible that what was measured was not necessarily accuracy but instead, the correspondence between the perceivers' and the targets' first impressions. Given that the current study used self-report measures of personality as the tool to assess accuracy, it is possible that although a perceiver and a target have a high degree of convergence in their appraisals of the target's personality, they are both forming an inaccurate appraisal. Therefore, the conclusions with regards to the accuracy of perceivers and targets high

and low in social anxiety must be interpreted with this caution in mind.

A third potential limitation of the current study is that it is possible that people *are* actually accurate at identifying the unique personality features of socially anxious individuals and instead, it is the socially anxious individuals who are inaccurately appraising their own personalities. Given the body of literature supporting the tendency of socially anxious individuals to engage in discounting of their social skills and performances (Abbott & Rapee, 2004; Alden & Wallace, 1995; Clark & Arkowitz, 1975; Edwards, Rapee, & Franklin, 2003; Mansell & Clark, 1999; Mellings & Alden, 2000; Norton & Hope, 2001; Rapee & Lim, 1992; Spurr & Stopa, 2003; Stopa & Clark, 1993), this appears to be a viable interpretation. One way this can be examined is by using informants (i.e., a close family member or friend) to also fill out the abbreviated BFI on the participants in order to reduce social desirability or discounting. A second study was recently conducted using informant judgments and found that including informant judgments of targets produced the same effects Therefore, it appears that socially anxious participants were accurate in their self-reports of their personalities and it is in fact others who are less able to perceive their unique personalities.

Finally, a fourth limitation of the current study was that participants only had 3 minutes to interact with each partner. Although first impression situations vary in length, an interesting avenue for future research would be to use the same methodology with longer interactions and evaluate whether it would impact how accurately the unique personality features of socially anxious participants are perceived. It would also be interesting to explore if socially anxious participants perceive greater assumed similarity with others in the context of a longer first interaction. As well, it would be of interest to see if the lack of negative association between liking and target's level of social anxiety could be replicated using the same methodology. Furthermore, it would be beneficial to replicate this study using a clinical sample.

Biesanz and Human (2010) found that if individuals were told to pay more attention to

accuracy, they became less normatively accurate, but more distinctly accurate. A second important avenue for future research would be to test this finding with socially anxious individuals. If it were found that accuracy instructions increased distinctive accuracy in first impression situations, socially anxious individuals may be more accurately appraised by their interaction partners, which might improve their partner's understanding of them and contribute to establishing more meaningful connections.

Thirdly, it would be very valuable to assess exactly why socially anxious individuals are perceived with less distinctive accuracy. Including measures of self-disclosure in future studies could help clarify whether it is a mechanism that contributes to others less accurately assessing the unique personality features of individuals high in social anxiety. A more in depth way to examine this would be to audio record each interaction and conduct a content analysis on the dialogues. This might clarify whether it is the amount or the content of self-disclosures that contributes to the reduced distinctive accuracy for targets high in social anxiety. Moreover, Human and Biesanz (2011b) found that well-adjusted targets had better judgability. It would be useful to explore if this finding applied to social anxiety by using a similar methodology and including trait observability as a moderator in the relationship between target social anxiety and self-other agreement.

In conclusion, the current study was the first to examine the accuracy of first impressions, both by and of socially anxious participants, in a round robin methodology. Although it appears that socially anxious people are relatively accurate in their appraisals of others personalities, it seems that others are less accurate at identifying the unique personality features of socially anxious individuals in first impression situations. This study provides an important stepping-stone for a very promising avenue for future research. Hopefully this can bring us closer to understanding why socially anxious individuals have difficulties forming friendships and how treatments can better assist with this.

Endnotes

[1] The informants had the option of participating by filling out an online abbreviated BFI measures about the participants in exchange for a $5 Starbucks gift card honorarium. The point of this additional component was to corroborate the participants' description of their personality profiles and to reduce any social desirability effects. Due to a delay in getting ethical approval, I was unable to recruit informants in this study.

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Appendix A

HSP Advertisement

When we meet other people, even briefly, we form impressions of them. We are interested in how personality traits influence the accuracy of our impressions of others and their impressions of us. In this study, participants will engage in brief interactions with other students and then rate their first impressions of each other. This study will take up to two hours and will result in two credits. If you have any further questions, feel free to contact either Audrey Aiken or Dr. Lynn Alden. Also, an optional component of the study is to provide the contact information for a family member or close friend who can also fill out the same survey about you in exchange for a $5 Starbucks card, but this is optional to provide.

Appendix B

Advertisement

When we meet other people, even briefly, we form impressions of them. We are interested in how personality traits influence the accuracy of our impressions of others and their impressions of us. In this study, participants will engage in brief interactions with other students and then rate their first impressions of each other. This study will take up to two hours and you will be compensated with $10 or 2 HSP credits if you choose to participate. If you are interested in participating, please provide the RA with your email address and you will be contacted shortly with more information. If you have any further questions, feel free to contact either Audrey Aiken or Dr. Lynn Alden. Also, an optional component of the study is to provide the contact information for a family member or close friend who can also fill out the same survey about you in exchange for a $5 Starbucks card, but this is optional to provide.

Appendix C

Abbreviated BFI

****

Meeting # 1
Other Participant's Name: _____
Other Participant's Subject Number: _____

Please write the number that indicates the extent to which you *agree or disagree with that statement*:

1	2	3	4	5	6	7
Disagree strongly	Disagree	Disagree a little	Neither agree nor disagree	Agree a little	Agree	Agree strongly

I see this person as someone who…

1.____ Is full of energy.
2.____ Is intelligent.
3.____ Worries a lot.
4.____ Generates a lot of enthusiasm.
5.____ Remains calm in tense situations.
6.____ Tends to be quiet.
7.____ Makes plans and follows through with them.
8.____ Can be cold and aloof.
9.____ Has an assertive personality.
10.___ Is sometimes shy, inhibited.
11.___ Is outgoing, sociable.
12.___ Tends to find fault with others.
13.___ Does a thorough job.
14.___ Is depressed, blue.
15.___ Is original, comes up with new ideas.
16.___ Is helpful and unselfish with others.
17.___ Can be somewhat careless.
18.___ Is relaxed, handles stress well.
19.___ Receives very good grades.
20.___ Starts quarrels with others.
21.___ Is a reliable worker.
22.___ Can be tense.
23.___ Is reserved.
24.___ Is ingenious, a deep thinker.
25.___ Has a forgiving nature.
26.___ Is bright.
27.___ Gets nervous easily.
28.___ Is nervous when interacting with strangers.
29.___ Is likeable.

Have you met this person before? Yes No

If yes, how do you know him/her?

Appendix D

SIAS

Instructions: Please indicate the degree to which you feel the statement is characteristic or true of you. Use the following scale as a guide:

0 = Not at all
1 = Slightly
2 = Moderately
3 = Very
4 = Extremely

_____ 1. I get nervous if I have to speak with someone in authority (teacher, boss, etc).

_____ 2. I have difficulty making eye-contact with others.

_____ 3. I become tense if I have to talk about myself or my feelings.

_____ 4. I find difficulty mixing comfortably with the people I work with.

_____ 5. I find it easy to make friends my own age.

_____ 6. I tense up if I meet an acquaintance in the street.

_____ 7. When mixing socially I am uncomfortable.

_____ 8. I feel tense if I am alone with just one other person.

_____ 9. I am at ease meeting people at parties, etc.

_____ 10. I have difficulty talking with other people.

_____ 11. I find it easy to think of things to talk about.

_____ 12. I worry about expressing myself in case I appear awkward.

_____ 13. I find it difficult to disagree with another's point of view.

_____ 14. I have difficulty talking to attractive persons of the opposite sex.

_____ 15. I find myself worrying that I won't know what to say in social situations.

_____ 16. I am nervous mixing with people I don't know well.

_____ 17. I feel I'll say something embarrassing when talking.

_____ 18. When mixing in a group I find myself worrying I will be ignored.

_____ 19. I am tense mixing in a group.

_____ 20. I am unsure whether to greet someone I know only slightly.

Appendix E

IAS

Please indicate the degree to which the statement is characteristic or true of you.

1	2	3	4	5
Not at all	Slightly	Moderately	Very	Extremely

1. ____ I often feel nervous even in casual get-togethers.
2. ____ I usually feel uncomfortable when I am in a group of people I don't know.
3. ____ I am usually at ease when speaking to a member of the opposite sex.
4. ____ I get nervous when I must talk to a teacher or boss.
5. ____ Parties often make me feel anxious and uncomfortable.
6. ____ I am probably less shy in social interactions than most people.
7. ____ I sometimes feel tense when talking to people of my own sex if I don't know them very well.
8. ____ I would be nervous if I was being interviewed for a job.
9. ____ I wish I had more confidence in social situations.
10. ____ I seldom feel anxious in social situations.
11. ____ In general, I am a shy person.
12. ____ I often feel nervous when talking to an attractive member of the opposite sex.
13. ____ I often feel nervous when calling someone I don't know very well on the telephone.
14. ____ I get nervous when I speak to someone in a position of authority.
15. ____ I usually feel relaxed around other people, even people who are quite different from me.

Appendix F

Participant Informed Consent

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Psychology
2136 West Mall
Vancouver, B.C.
Canada, V6T 1Z4
Tel: (604) 822-2755
Fax: (604) 822-6923

Subject Pool Consent Form for *Accuracy in Personality Perception*

Principal Investigator:
Dr. Lynn Alden
Department of Psychology, UBC

Co-Investigator:
Audrey Aiken
Department of Psychology, UBC

Introduction and Purpose: We are studying the factors that influence our first impressions of other people. In particular, we want to see how various personality traits affect our impressions of other people and conversely, how they affect other people's impressions of us. Some of the information collected will be used for Audrey Aiken's Master's thesis.

Study Procedures: Participants will be asked to fill out questionnaires describing themselves and then to engage in brief interactions with 5-10 other students and rate impressions of their personalities. There are no right or wrong answers here- we just want to understand what affects our impressions of people we meet for the first time. Also, an optional component of the study is to pass along a separate informed consent form to a family member or close friend to see if they are interested in filling out the same survey about you in exchange for a $5 Starbucks card, but this is optional to provide and you will not be penalized if you don't. The purpose for this is to have a more complete and objective understanding of your individual personality profile.

Risks: It can feel somewhat uncomfortable or awkward to interact with people you haven't met before. This reaction is normal and often fades over the course of the interaction. You can also withdraw from the study at any time.

Benefits: You will gain experience with research on social interactions and have the opportunity to learn more about how we form first impressions.

Confidentiality: Any identifying information resulting from your participation will be kept strictly confidential. During the study, you will be identified only by a participation number and you do not have to give your name to your interaction partners if you prefer not to. The ratings data is kept confidential and not shared with other participants. As per UBC regulations, data will be stored in a locked filing cabinet or on a password-protected computer, and will be destroyed after the required storage period. There will be no identifying information on any of the rating forms or data files, only participation numbers. Only the principal investigator, Dr.

Lynn Alden, and her graduate student, Audrey Aiken, will have access to the questionnaire information.

Compensation: This study will take no more than 2 hours of your time. If you are eligible for extra credit points in a UBC Psychology course through the Psychology Subject Pool, you will receive 2 credits, even if you choose to withdraw from the study.

Contact for information about the study: If you have any questions or would like further information about this study, please contact Dr. Lynn Alden.

Contact for concerns about the rights of research subjects: If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at (604) 822-8598.

Consent: Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time. You will not be penalized in any way should you choose not to participate or withdraw.
Your signature below indicates that you have received a copy of this consent form for your records.
Your signature below also indicates that you consent to participate in the study.

_____
Participant Signature Date

_____
Printed Name of Subject

Appendix G

Informant Informed Consent

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Psychology
2136 West Mall
Vancouver, B.C.
Canada, V6T 1Z4
Tel: (604) 822-2755
Fax: (604) 822-6923

Subject Pool Consent Form for *Accuracy in Personality Perception*

Principal Investigator:
Dr. Lynn Alden
Department of Psychology, UBC

Co-Investigator:
Audrey Aiken
Department of Psychology, UBC

Introduction and Purpose: We are studying the factors that influence our first impressions of other people. In particular, we want to see how various personality traits affect our impressions of other people and conversely, how they affect other people's impressions of us. Some of the information collected will be used for Audrey Aiken's Master's thesis.

Study Procedures: Participants were asked to fill out questionnaires describing themselves and then to engage in brief interactions with 5-10 other students and rate impressions of their personalities. We then provided everyone with the option of contacting a close family member or friend, in other words you, to see if they would be interested in filling out the same questionnaire about the participant. The participant will not be able to see this survey in order to preserve your confidentiality. The only people who will have access to this survey will be the primary researcher, Dr. Lynn Alden, and her co-researcher, Audrey Aiken. Therefore, if you do choose to fill out the following survey, please be as honest as possible. The reason for this is to help the researchers to have a more complete understanding of the participant's personality profile. Your participation is completely voluntary and optional and the participant will not be penalized in any way if you choose not to participate. If you are willing to do this, please contact the researcher Audrey Aiken at aaiken@psych.ubc.ca.

Risks: It can feel somewhat uncomfortable to rate the personality of someone you know. You can withdraw from the study at any time.

Benefits: You will gain experience with research on social interactions and have the opportunity to learn more about how we form first impressions.

Confidentiality: Any identifying information resulting from your participation will be kept strictly confidential. During the study, you will be identified only by a participation number as well as the participant that you are rating. The ratings data is kept confidential and not shared with other participants. As per UBC regulations, data will be stored in a locked filing cabinet or

on a password-protected computer, and will be destroyed after the required storage period. There will be no identifying information on any of the rating forms or data files, only participation numbers. Only the principal investigator, Dr. Lynn Alden, and her graduate student, Audrey Aiken, will have access to the questionnaire information.

Compensation: The survey should take no more than 10 minutes to complete online. If you are interested in participating, we will provide you with a $5 Starbucks gift card honorarium for your time.

Contact for information about the study: If you have any questions or would like further information about this study, please contact Audrey Aiken or Dr. Lynn Alden.

Contact for concerns about the rights of research subjects: If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at (604) 822-8598.

Consent: Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time. You will not be penalized in any way should you choose not to participate or withdraw.
Your signature below indicates that you have received a copy of this consent form for your records.
Your signature below also indicates that you consent to participate in the study.

_____
Participant Signature Date

_____
Printed Name of Subject

Appendix H

Participant Debriefing Form

The University of British Columbia
Department of Psychology
2136 West Mall
Vancouver, B.C.
Canada, V6T 1Z4

Tel: (604) 822-2755
Fax: (604) 822-6923

Debriefing Form: Accuracy in Personality Perception

Thank you all very much for your participation in this study. We are examining how various personality factors affect our first impressions of people we meet for the first time. Specifically, we are looking at whether individual differences in personality affect the accuracy of our first impressions of others and the accuracy of others' impressions of us. We define accuracy as the correlation between how we rate ourselves and how other people rate us. You were asked to each interact with each other for three minutes then rate each other. The independent variables in this study are both the assessment you did on your own personality and the average of everyone's ratings of their own personalities. These will be combined with the ratings of your personality provided by someone close to you (if you choose to participate in that option) in order to get the most complete understanding of your personality. The dependent variable is your ratings of your partners' personalities. The results of this study will help us understand the initial stages of social relationships and how these might influence the later formation of deeper friendships. For example, it is possible that we form more accurate impressions of extraverted people than introverted people because they reveal more about themselves. We are also interested in whether discomfort or anxiety in first meeting situations like this affects the accuracy of our impressions of others and vice versa. For example, people often feel somewhat uncomfortable in first meeting situations. When this happens, we may reveal less information about ourselves, which might prevent others from getting an accurate impression of what we're really like. If anyone is interested in reading more about this area of research, there are some interesting references on the bottom of the debriefing form that you have all been given. Does anyone have any questions? If you think of any questions later, please feel free to email either Audrey Aiken or Dr. Lynn Alden at the email addresses provided on the debriefing form. Thank you again for your participation. It is greatly appreciated.

If you have any further questions, please feel free to ask the experimenter or use the contact information below to contact a member of the research team at a later time. If you have any concerns about your own anxiety in first meeting situations, please let the experimenter know and we will contact you to provide information about what you can do about this.

Contact Information about the Experiment: This experiment is being conducted under the supervision of Dr. Lynn Alden, the principal investigator. Please contact Dr. Alden if you have any questions about this study. You may also contact Audrey Aiken, co-investigator, with any questions or concerns.

More Information about the Experiment: For related information about person perception and first impressions, please see the following articles:

Biesanz, J. C., Human, L. J., Paquin, A.-C., Chan, M., Parisotto, K. L., Sarracino, J., & Gillis, R. L. (2011). Do we know when our impressions of others are valid? Evidence for realistic accuracy awareness in first impressions of personality. *Social Psychological Personality Science.* Advance online publication. doi: 10.1177/1948550610397211

Human, L. J., Biesanz, J. C., Parisotto, K. L., & Dunn, E. W. (2011). Your best self helps reveal your true self: Positive self-presentation leads to more accurate personality impressions. *Social Psychological and Personality Science, 000, 1-8.* doi: 10.1177/1948550611407689

Appendix I

Informant Debriefing Form

The University of British Columbia
Department of Psychology Tel: (604) 822-2755
2136 West Mall Fax: (604) 822-6923
Vancouver, B.C.
Canada, V6T 1Z4

Debriefing Form: Accuracy in Personality Perception

Thank you all very much for your participation in this study. We are examining how various personality factors affect our first impressions of people we meet for the first time. Specifically, we are looking at whether individual differences in personality affect the accuracy of our first impressions of others and the accuracy of others' impressions of us. We define accuracy as the correlation between how we rate ourselves and how other people rate us. The participants were asked to each interact with each other for three minutes then rate each other. The independent variables in this study are both the assessment they did on their own personality and the average of everyone's ratings of their own personalities. These will be combined with the ratings of their personality that you provided in order to get the most complete understanding of their personality. The dependent variable is the participant's ratings of their partners' personalities. The results of this study will help us understand the initial stages of social relationships and how these might influence the later formation of deeper friendships. For example, it is possible that we form more accurate impressions of extraverted people than introverted people because they reveal more about themselves. We are also interested in whether discomfort or anxiety in first meeting situations like this affects the accuracy of our impressions of others and vice versa. For example, people often feel somewhat uncomfortable in first meeting situations. When this happens, we may reveal less information about ourselves, which might prevent others from getting an accurate impression of what we're really like. If you are interested in reading more about this area of research, there are some interesting references on the bottom of the debriefing form that you have all been given. If you have any questions, please feel free to email either Audrey Aiken or Dr. Lynn Alden at the email addresses provided on this debriefing form. Thank you again for your participation. It is greatly appreciated.

If you have any further questions, please feel free to use the contact information below to contact a member of the research team at a later time. Also, please contact the researchers if for any reason you have any problems with the Starbucks card.

Contact Information about the Experiment: This experiment is being conducted under the supervision of Dr. Lynn Alden, the principal investigator. Please contact Dr. Alden if you have any questions about this study. You may also contact Audrey Aiken, co-investigator, with any questions or concerns.

More Information about the Experiment: For related information about person perception and first impressions, please see the following articles:

Biesanz, J. C., Human, L. J., Paquin, A.-C., Chan, M., Parisotto, K. L., Sarracino, J., & Gillis, R.

L. (2011). Do we know when our impressions of others are valid? Evidence for realistic accuracy awareness in first impressions of personality. *Social Psychological Personality Science.* Advance online publication. doi: 10.1177/1948550610397211

Human, L. J., Biesanz, J. C., Parisotto, K. L., & Dunn, E. W. (2011). Your best self helps reveal your true self: Positive self-presentation leads to more accurate personality impressions. *Social Psychological and Personality Science, 000, 1-8.* doi: 10.1177/1948550611407689