Are Individuals Able to Accurately Report Their Own Behaviour? An Investigation of Observer-Respondent Disparity of Reported Behaviours Associated with Social Anxiety

Dani R. Adduono

A thesis submitted to the Department of Psychology

in partial fulfillment of the requirements for the degree of

Master of Science in Psychological Science

Department of Psychology

Lakehead University

Thunder Bay, Ontario

Supervisory Committee:

Primary Supervisor: Dr. Dwight Mazmanian

Second Reader: Dr. Ron Davis

External Examiner: Dr. Edouard St-Pierre

Abstract

Social anxiety is characterized by the powerful fear of negative evaluation from others and a high level of self-focused attention (SFA). In addition, socially anxious individuals often engage in a variety of anxiety-related behaviours during a social situation. The purpose of the current investigation was to analyze the relationships between social anxiety, SFA, and anxiety-related behaviours and to assess the observer-respondent disparity in reports of anxiety-related behaviours. This study assessed 104 students from Lakehead University who were asked to complete a battery of self-report questionnaires and then partook in a social anxiety induction where they were asked to speak about themselves to two individuals during a video-conference. The participants were instructed to provide their best first-impression and were advised that the individuals they will be speaking to were instructed to only listen. The sessions were videotaped to permit observer ratings of the participant's anxiety-related behaviour. Hierarchical regression analyses were executed to analyze the relationships among the different variables and a positive relationship was found between both social anxiety and SFA with safety behaviours. Additionally, a positive relationship was found between only social anxiety and the non-verbal behaviours measured with an established ethogram. Self-report ratings were then compared to the observer ratings and the results indicated that low and high levels of social anxiety were associated with under and overestimations of anxiety-related behaviour use, respectively. A similar pattern of results was found for reported SFA level. The findings from this study suggest that reliance on self-reported behaviour may not be the most accurate method of assessing behaviours associated with social anxiety, as individuals with high levels of social anxiety may not be able to accurately report their own behaviours.

Table of Contents

List of Abbreviations

ECSI-SR	Ethological Coding System for Interviews-Self Report
ECSI	Ethological Coding System for Interviews
SFA	Self-Focused Attention
SPIN	Social Phobia Inventory
FAQ	Focus of Attention Questionnaire
SPSBS	Social Phobia Safety Behaviours Scale
SAFE	Subtle Avoidance Frequency Examination
SUDS	Subjective Units of Distress Scale
PANAS	Positive and Negative Affect Schedule
GAD-7	Generalized Anxiety Disorder 7-Item
CES-D	Center for Epidemiologic Studies - Depression Scale
PRF-D	Personality Research Form - Social Desirability Scale
PRF-I	Personality Research Form - Infrequency Scale
ASBQ	Anticipatory Social Behaviours Questionnaire
FAQ-SFA	Focus of Attention Questionnaire – Self Focus Subscale

List of Appendices

List of Figures

List of Tables

Are Individuals Able to Accurately Report Their Own Behaviour? An Investigation of Observer-Respondent Disparity of Reported Behaviours Associated with Social Anxiety

Limitations of Self-Report

For many years clinicians and researchers have relied on self-report measures to evaluate symptoms and correlates of mental disorders. However, in recent years, it has been discovered that this may not be an optimal avenue for measurement. Researchers have often found that self-reports are limited due to biases, recall error, and other factors (Paulhus & Vazire, 2007; Troisi, 2002). In fact, in response to the criticism regarding self-report methods, particularly for measuring the behavioural correlates of psychological disorders, it has been proposed that observer measures of non-verbal behaviours be used whenever possible (Troisi, 1999, 2002). Introducing a measure of nonverbal behaviour in conjunction with scales and interviews has proven beneficial in advancing clinical assessment (Troisi, 1999). Troisi has offered substantial evidence to show that measuring such non-verbal behaviour does not only translate what is already known using scales into objective data, but also that it adds new insights into debated aspects of psychological disorders (Troisi, 1999).

As mentioned above, the accuracy of self-report may be influenced by a variety of factors, including but not limited to socially desirable responding, acquiescent responding, and extreme responding, or random responding (Paulhus & Vazire, 2007). Regarding social desirability, individuals may respond in a desirable way by either managing the impression they wish to convey or unconsciously engaging in self-deception. Social desirability responding tends to happen when the individual feels it is imperative to be perceived in a favorable light, such as a job interview (impression management; exaggeration, faking, and lying) or job loss (deception; denial or defensive responding; Paulhus & Vazire, 2007).

Excessive agreeing or disagreeing characterizes acquiescent responding, and usually occurs without considering the content of the question (Paulhus & Vazire, 2007). One major concern is that acquiescence can stem from a person's actual personality, indicating that the individual may have a need to conform. Another reason self-reports may be inaccurate is due to extreme responding. Extreme responding can be defined as consistently answering with the extreme choices on a rating scale (Paulhus & Vazire, 2007).

Finally, other response styles such as pattern, random, or inconsistent responding are also possible when utilizing self-reports. Individuals may also not be fully aware of their inaccurate self-disclosure, as it is difficult for an individual to recall all pertinent information related to the question (Paulhus & Vazire, 2007). All of the difficulties regarding self-reports mentioned potentially create inaccuracies for the measurement of anxiety-related behaviours much the same way they do with any other research utilizing self-reports in general. In addition to these difficulties, another potential problem that must be considered in professional settings, such as clinical assessments, are whether individuals are even fully aware of the circumstances about which the self-report measures are asking.

Self-Awareness

While a variety of cognitive and behavioural features are commonly associated with numerous psychological disorders, there is often a question as to how accurately individuals are able to acknowledge and report them to professionals such as clinicians and researchers. Thus, even if the aforementioned issues associated with self-report do not pose a complication, issues with self-awareness should be analyzed when the utilization of self-reported information is depended on.

Although not specific to the experience of any mental disorder, including social anxiety,

Duval and Wicklund's (1972) theory of objective self-awareness provides a theoretical foundation regarding self-awareness in general. The theory of objective self-awareness, which can also be referred to as self-focused attention (SFA; Wicklund, 1975), suggests that individuals are able to exist in a state where they believe themselves to be an object, where the self can be viewed from the perspective of an actual or hypothetical other (Silvia & Gendolla, 2001). According to this theory, attention can be focused inward, concentrating solely on the self, or attention can be focused outward, and therefore concentrating solely on one's environment. Although focused attention can rapidly oscillate between the self and the environment, this theory indicates that attention cannot be given to both entities simultaneously. An increase in objective self-awareness reflects a state characterized by an increase of time that attention is focused introspectively, relative to attention focused on the environment (Wicklund, 1975).

Numerous investigations have shown that an increase in SFA is correlated with various subsets of social anxiety (e.g., Bögels & Lamers, 2002; Butler, 1989; Hartman, 1983; Hope, Gansler, & Heimberg, 1989; Pineles & Mineka, 2005; Schlenker & Leary, 1982; Wells, Clark, & Ahmad, 1998), particularly if the situation is socially threatening. Examples of socially threatening situations include, but are not limited to, informing the socially anxious individual that attention will be focused upon some aspect of their being (i.e., their heart rate is audible to their audience), that they will be subjected to a public speaking exercise, or that they will be exposed to a video camera (Bögels & Lamers, 2002; George & Stopa, 2008; Gerlach, Mourlane, & Rist, 2004; Hodson, McManus, Clark, & Doll, 2008; Mansell, Clark, & Ehlers, 2003; Pineles & Mineka, 2005). One of the first reports of heightened SFA within social anxiety comes from Clark and Wells (1995) who indicated that when a socially anxious individual perceives a significant social threat, they tend to redirect much of their attention introspectively. This

change in allocation of attention is deemed problematic as it has been shown to enhance the awareness of what is known as an anxiety program, which is a collection of responses triggered by an overwhelming fear. This anxiety program will be discussed in detail in later sections. Presently, it is sufficient to recognize that enhanced awareness has been shown to create difficultly in the recognition of any social cue that the individual is not the center of attention. As such, it has been suggested that this increase in SFA contributes to the maintenance of the disorder. It is apparent that social phobics use the results of this incredibly detailed introspective monitoring to form an unfavourable impression of themselves, an impression they often believe is shared by their social audience (Clark & Wells, 1995). A more recent investigation supports the suggestion that SFA is a significant contributor to the maintenance of social anxiety. It was found that, during a webcam conversation with an attractive confederate, participants clinically diagnosed with social anxiety were significantly more self-focused during the entire conversation, compared to controls not diagnosed with social anxiety (Vriends, Meral, Bargas-Avila, Stadler, & Bögels, 2017). A subclinical sample showed that females with socially anxious tendencies had high levels of SFA particularly when the attractive confederate was critical (Vriends et al., 2017).

Furthermore, a facet of the aforementioned theory of objective self-awareness provides further evidence for the idea that a heightened self-focus tendency may be apparent during social situations. A principle of this theory states that the presence of a social audience, which likely cues the threat of a social danger, tends to increase the state of objective awareness or, in other words, increases a state of SFA (Wicklund, 1975). Thus, it appears that individuals enduring experiences which trigger a state of social anxiety are likely more vigilant of their own behaviour relative to their non-anxious counterparts.

Clinical investigations also point to the possibility of a significant increase in SFA amongst social phobics (Böger & Lamers, 2002; Hope, Heimberg, Zollo, Nyman, & O'Brien, 1987; Grisham, King, Makkar, & Felmingham, 2014; Kley, Tuschen-Caffier, & Heinrichs, 2012; Vriends et al., 2016, 2017). Hope and colleagues (1987) found that, for a non-clinical sample of college students, those with higher levels of social anxiety tended to be more self-focused and have more self-focused thoughts than those with lower levels of social anxiety. Furthermore, a recent study found that those presenting with higher social anxiety showed elevated levels of SFA, relative to those who presented with low levels of social anxiety. This study also found that the avoidance tendencies often found within social anxiety are partly mediated by this elevated SFA characteristic (Grisham et al., 2014).

Further evidence of the correspondence between social anxiety and SFA comes from an investigation by Böger and Lamers (2002). Participants were first asked to review scenarios of a hero that was currently the center of attention, and upon completion, all participants were instructed to imagine that the event depicted happened to them. Each scenario differed in feedback from an audience (positive, negative, and neutral) and focus of attention on the part of the hero (self or task focused), and participants were then asked to complete a battery of questionnaires. The results suggested that the focus of attention mediated the participants' state level of social anxiety. Specifically, participants experienced a significant increase in social anxiety when an increase in SFA was present, relative to when they focused upon their environment (i.e., the task-focused manipulation; Böger & Lamers, 2002).

Therefore, there appears to be an established link between SFA and the experience of social anxiety. A recent investigation delineated this link further by looking at how self-construal affects the relationship between social anxiety and SFA (Vriends et al., 2016).

Specifically, this study analyzed a culturally-based dimension of self-construal whereby those with an interdependent self-construal emphasize membership to a whole (i.e., a group or a culture) and those with an independent self-construal emphasize individuality and autonomy. Results indicated that highly socially anxious individuals with an independent self-construal presented with higher SFA relative to those with low social anxiety levels. However, those highly socially anxious individuals with an interdependent self-construal actually showed lower levels of SFA relative to those with low social anxiety levels (Vriends et al., 2016). These findings may suggest that culture may moderate the relationship between SFA and social anxiety but they also replicate previous findings of an established relationship between these two variables.

An Introduction into Social Anxiety

Schlenker and Leary (1982) defined anxiety as the cognitive reaction to an upcoming, generally negative event, coupled with an associated perceived fear that one is not able to avoid the anticipated consequence. Social anxiety is a subtype of anxiety where one experiences a marked fear of interpersonal evaluation during social events and interactions (Schlenker & Leary, 1982). It has been proposed that individuals who present with social anxiety fixate on social cues, such as the facial expressions of their audiences, more than individuals who do not experience elevated levels of social anxiety (Hunter, Buckner, & Schmidt, 2009). According to Clark and Wells (1995), a main characteristic of social anxiety is a self-perceived inadequacy in portraying a favourable personality and appearance, which is often unrealistic. The idea that one cannot achieve this unrealistic persona is proposed to create the experience of social anxiety. This can often lead to individuals displaying behaviours or attitudes that differ from who they genuinely are (Clark & Wells, 1995; Schlenker & Leary, 1982; Wong & Rapee, 2016).

Social anxiety disorder has an estimated prevalence rate of 7% (American Psychiatric Association, 2013), and at both clinical and subclinical levels, it can disrupt one's quality of life (Mallott, Maner, Dewall, & Schmidt, 2009; Safren, Heimberg, Brown, & Holle, 1996). In fact, much of the previous research has reported that individuals with social anxiety disorder rate their quality of life lower compared to normative samples (Rapaport, Clary, Fayyad, & Endicott, 2005; Safren et al., 1996). As well, social anxiety has been found to be a comorbid disorder with other mental health disorders, including major depressive disorder, obsessive-compulsive disorder, and panic disorder (Rapaport et al., 2005). Interestingly, the prevalence of social anxiety disorder commonly precedes the subsequent emergence of major depressive disorder, indicating the possibility that an individual with social anxiety disorder may be predisposed to major depressive disorder (Ohayon & Schatzberg, 2010; Regier, Rae, Narrow, Kaelber, & Schatzberg, 1998).

Like other types of anxiety, social anxiety exists on a continuum of severity rather than being a categorical phenomenon where individuals either have the disorder or they do not (Knappe, Beesdo, Fehm, Lieb, & Wittchen, 2008; Merikangas, Avenevoli, Acharyya, Zhang, & Angstis, 2002). Measuring social anxiety on a continuum of severity allows us to acknowledge that even when social anxiety symptoms do not reach diagnostic threshold, they can still be associated with increased distress and reduced quality of life (Merikangas et al., 2002). As well, the idea of a continuum of severity allows for more fluidity in measurement, which helps explain why socially anxious individuals may fluctuate above and below threshold criteria (Knappe et al., 2008; Merikangas et al., 2002).

Theories of Social Anxiety

Several theories have been proposed to explain what social anxiety is, what causes it, and

how it is maintained. From an evolutionary perspective, social anxiety may have arisen as an adaptive response to an evolutionary problem, where subordinate primates would constantly monitor their behaviour, mainly to avoid harm from a dominant conspecific (intra-species, or an organism of the same species; Trower & Gilbert, 1989).

Many researchers have proposed models that attribute social anxiety to deficiencies within a particular individual, whether it be an inadequacy within their repertoire of social skills their own perception of inadequacies, or even an enduring personality trait. Curran (1977) proposed one of these models, known as the Skills-Deficit Model. This model suggested that individuals who possess inept social skills experience anxiety as a consequence of their inadequate social competency. Much of the research has failed to support this theory however. Individuals with social anxiety actually show selective attention towards facial expressions (a prominent social skill; Hunter et al., 2009), and that social skills training does not decrease the experience of social anxiety (Clark & Arkowitz, 1975). Another model, put forth by Rehm and Martson (1968), is known as the Cognitive Self-Evaluation model, and proposes that social anxiety is directly associated with an individual's perception of his or her own self-performance and self-reinforcement. Cacioppo, Glass, and Merluzzi (1979) provided support for this model when they demonstrated that negative self-evaluations play a role in mediating social anxiety. Similar to the cognitive self-evaluation model is the Personality Trait Theory, which seeks to identify the affective, behavioural, and cognitive aspects of social anxiety as a personality trait or as a biological predisposition for social anxiety (Schlenker & Leary, 1982).

Other models proposed that social anxiety can be attributed to stimuli within an individual's environment. One such model is the Classical Conditioning Model, which proposes that social anxiety results from the pairing of a previously neutral stimulus with a new aversive

stimulus (Curran, 1977). For example, individuals with no previous phobia of public speaking may acquire the fear after they have received an unpleasant response from their audience. In addition, a more current model known as the Integrating Aetiology and Maintenance Model, illustrates that when an individual experiences an anxiety-producing stimuli, the intensity of these experiences are quantified on a continuum of severity. Consequently, each stimulus will induce a specific level of anxiety within the individual. Furthermore, the individual will subconsciously give each stimulus a value, ranging from low to high, which corresponds with a specific threat potential. This will subsequently direct how the individual behaves in a social situation (Wong & Rapee, 2016). For example, if an individual assigns a high value to an anxiety-inducing stimulus, this will correspond with a severe threat potential, and will direct the individual to behave accordingly. These two models illustrate that social anxiety may arise due to environmental factors, and to deficits within the individual.

Currently, the most prominent model for explaining the development of social anxiety is Clark and Wells' (1995) cognitive model of social anxiety. This model appears to combine both personality correlates and environment, both of which were described within the previous models. The authors of this model propose that when individuals with social anxiety are in a social situation, they experience an intense fear resulting from the belief that the way they are acting is unacceptable. They often believe that this behaviour will lead to a loss of status, worth, and possibly lead to rejection. To someone experiencing social anxiety, the overwhelming fear is thought to trigger an automatic response commonly referred to as his or her "anxiety program". This "anxiety program" is a collection of various bodily responses ranging from thoughts to physical behaviours (Clark & Wells, 1995). These responses were originally thought to be an adaptive reaction in order to assist in survival (Trower & Gilbert, 1989). The adapted

response (anxiety program) is therefore thought to be useful when utilized by a healthy individual. However, for an individual suffering from social anxiety, this response can be detrimental. It can create a vicious circle and consequently exacerbate the anxiety (Clark & Wells, 1995). Because in a socially anxious individual, the danger is a perceived threat instead of being an actual pending danger, the anxiety program response may result in the person acting in such a way that makes the situation worse. For example, a somatic response that often occurs within a social environment includes blushing, which is often associated with increased skin temperature and increased blood flow. This somatic response is common to both socially anxious and non-socially anxious individuals (Voncken & Bögels, 2009). However, if an individual with social anxiety begins to blush, they are more likely perceive the situation as being more socially dangerous than it truly is, relative to non-socially anxious individuals. This particular perception likely occurs because of the fear the individual has of evaluation from social peers. This may cause the individual to over-fixate on their blushing, causing them to ignore the social cues their audience is giving or be unable to assess them correctly. Consequently, the individual is unable to escape this perception of negative evaluations, ultimately causing an exacerbation of the fear. This can result in the individual changing his or her behaviour towards others (e.g., acting less friendly and open to others), which, in turn, may cause others to avoid them, further worsening the anxious response (Clark & Wells, 1995; Voncken & Bögels, 2009). The authors also propose that the negative beliefs explained previously are maintained through the use of safety behaviours, which are discussed in detail below. Safety behaviours can have damaging effects for the individuals, as they often prevent disconfirmation of the individual's negative beliefs, as well as often make the feared outcome more likely (Clark & Wells, 1995).

Behavioural Responses to Social Anxiety

Various factors have been identified that maintain the experience of social anxiety, many of which are shown in Figure 1 (Hofmann, 2007). Of the various factors identified, social anxiety is largely maintained through behavioural responses such as safety and displacement behaviours. Social anxiety can be maintained specifically through the use of safety behaviours that allow an individual to feel more at ease within an anxiety-inducing social interaction (Rowa et al., 2015). As well, social anxiety can be maintained through self-focused displacement behaviours (also known as self-directed behaviours; Castles, Whiten, & Aureli, 1999) that are often present at times of high stress and anxiety, such as self-grooming and yawning (Troisi, 2002). In addition, recent research has shown a statistically significant difference between the scores of highly socially anxious individuals and low socially anxious individuals on the non-verbal behaviours measured by the Ethological Coding System for Interviews-Self Report (ECSI-SR; Adduono, Pope, & Mazmanian, 2018). While this study will be discussed in detail later on, this finding does suggest that social anxiety is also related to these non-verbal behaviours, although more research is needed to investigate their role as a maintaining factor to the disorder.

Safety Behaviours. Safety behaviours are common methods to manage social anxiety (Clark & Wells, 1995). Safety behaviours can be defined as behaviours that allow the individual to feel more at ease and safer in his or her current environment (Rowa et al., 2015). When used intentionally, safety behaviours are utilized to avoid a perceived pending catastrophe (Mcmanus, Sacadura, & Clark, 2008). Safety behaviours involve physical, active behaviours (e.g., speaking quickly or pretending to be busy) as well as cognitive methods, including avoidance (e.g., avoiding eye contact, avoiding speaking about oneself, or imagining ways to escape;

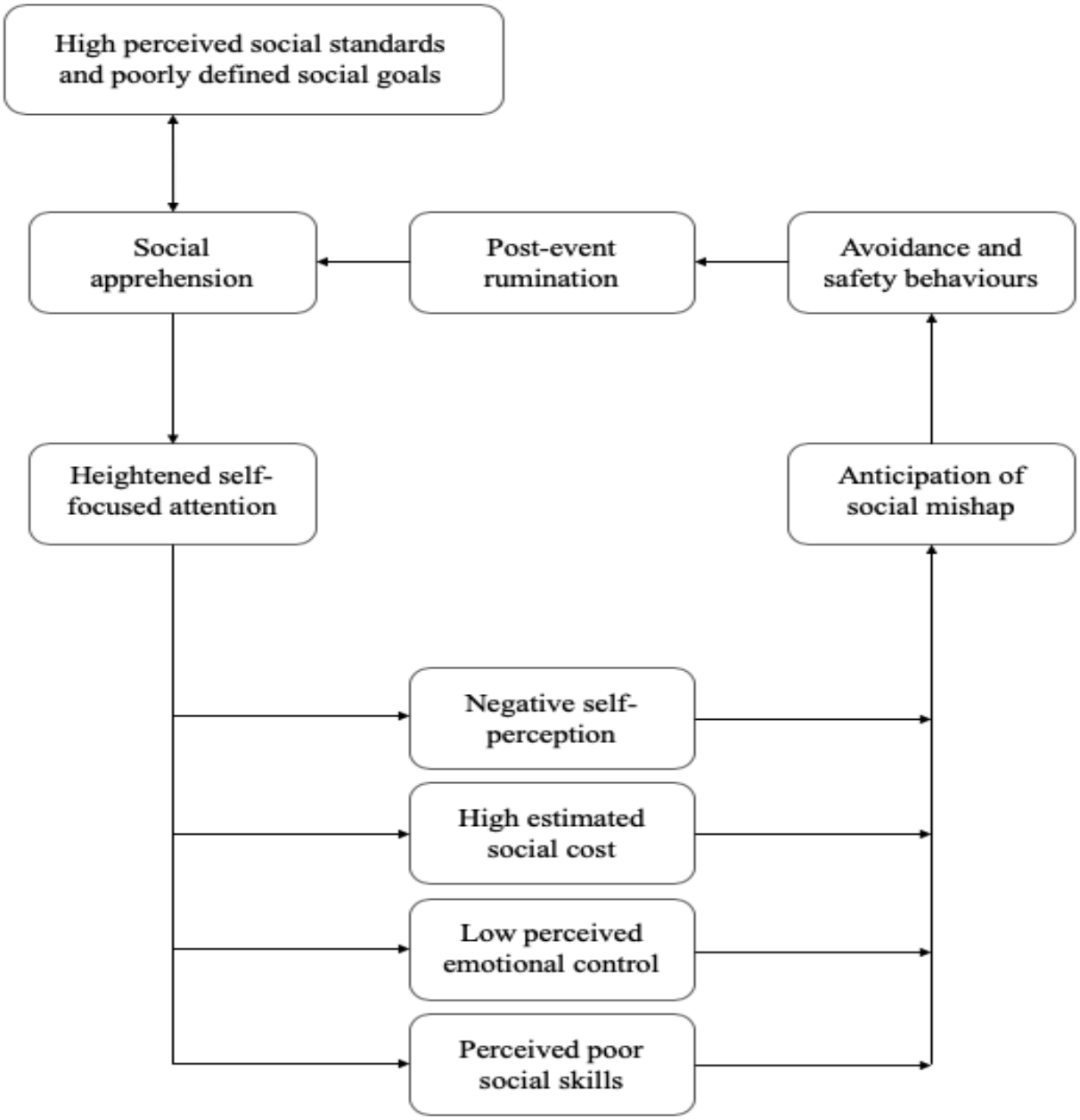


Figure 1. Maintaining factors of social anxiety, adapted from Hofmann (2007)

Cuming et al., 2009). It is important to understand that safety behaviours used by individuals with social anxiety seem to present a paradoxical situation. Since safety behaviours are utilized to avoid a perceived impending threat, the individual may expect that it would reduce their social anxiety. However, research suggests that utilizing these safety behaviours can actually exacerbate the anxiety, creating a circular effect, similar to the effect described by Clark and Wells' (1995) cognitive model (Alden & Bieling, 1998; Hirsch, Meynen, & Clark, 2004; Mcmanus et al., 2008; Wells et al., 1995). For example, an individual may be worried about shaking in public, as that could be evaluated in a negative manner. An individual attempting to control this may stiffen his or her body, which can in turn either create a tremor or worsen an existing one. This may result in a greater feeling of loss of control felt by the individual, and elicit the feared response from their audience, (e.g., a negative evaluation; Wells et al., 1995). Furthermore, since the threat is usually an imagined danger, the safety behaviours interfere with the cognitive processes that allow the individual to recognize that the threat was imagined. Thus, the safety behaviour reinforces the anxiety, as it does not allow the individual an opportunity to obtain disconfirming evidence of the threat (Plasencia, Alden, & Taylor, 2011; Wells et al., 1995).

Avoidance model. Researchers have proposed that there are two categories of safety behaviours (Plasencia et al., 2011; Rowa et al., 2015). One category is avoidance behaviours and includes behaviours such as minimal talking, minimal or no eye contact, and low self-disclosure (Plasencia et al., 2011). It has been reported that the use of avoidance behaviours can have a more detrimental effect on the individual being more often associated with the negative perceptions of others when compared to impression management behaviours (discussion to follow; Plasencia et al., 2011). Avoidance behaviours help the individual to evade negative

consequences and evaluations. However, avoidant behaviours have been found to be negatively connected with a social partner's desire for future interaction and as a result may lead to further social rejection. This can heighten anxiety further and result in the very situation the individual was trying to avoid (Plasencia et al., 2011).

Impression management model. The second category is called impression management and refers to one's attempt to present a very positive self-image through extensive self-monitoring and self-control (Piccirillo, Dryman, & Heimberg, 2016; Plasencia et al., 2011; Rowa et al., 2015). Examples of impression management behaviours include excessive self-monitoring and control, over preparation, and innocuous sociability (artificial expression of interest using fake smiles and nods; Piccirillo et al., 2016; Plasencia et al., 2011). These types of behaviours have been argued to be similar to adaptive social behaviours observed in healthy control samples. However, when used by a socially anxious individuals, they are not used with the intention to adapt to the situation as is seen in healthy control samples, but rather to avoid rejection and negative evaluation (Plasencia et al., 2011). It has been reported that impression management behaviours do not result in negative perceptions from other people, as is seen with avoidance behaviours, however they may further aggravate the anxiety experience. For example, although impression management behaviours may enhance the likability of the individual and perhaps actually extend the social interaction, the socially anxious individual will likely feel inauthentic since the impression they are giving is not representative of their true self (Piccirillo et al., 2016). These behaviours have also been shown to present greater cost predictions for future interactions than avoidance behaviours. In other words, these behaviours present a greater likelihood of a social penalty or loss in the future, compared to avoidance behaviours. This is possibly because the individual feels like they have more to lose after they have portrayed a

disingenuous positive image that is difficult to maintain (Piccirillo et al., 2016; Plasencia et al., 2011).

As impression management behaviours tend to align more with pro-social behaviours when compared to avoidance behaviours, they tend to be harder to detect by clinicians and researchers, or even the individuals themselves. That being said, they have not been shown to offer any benefits for lowering social anxiety in the long term (Plasencia et al., 2011).

Displacement Behaviours. Based on evolution theory, displacement behaviours are behaviours that are self-focused (such as self-grooming, self-scratching, yawning, etc.) and are often observed during situations where you would not expect to see them (Troisi, 1999, 2002). Provided by Troisi (2002), an example of a more intricate displacement behaviour includes the abnormal behaviour shown by a male three-spined stickleback during a time of anxiety - courting. During this time, the male three-spined stickleback is seen to swim back to the nest and begin a parental behaviour (fanning meant to ventilate eggs) when there are no eggs present. This random behaviour does not aid in the courtship of a female, and therefore is seen as an irrelevant behaviour. Early ethologists thought this behaviour originates when normal expression of behaviour is blocked and is therefore displaced and shown through a seemingly irrelevant behaviour (Troisi, 2002).

Displacement behaviours, such as the one described above, are said to arise during two conditions. The first is when there is motivational conflict and the outcome has the chance to be misinterpreted (Troisi, 2002). An example would be when an individual produces an action that has an equal opportunity to attack an incoming conspecific or to court a member of the opposite sex. The equilibrium of motivation produces a conflict in the individual, which results in a displacement behaviour, possibly to create a state of homeostasis again (Troisi, 2002). The

second reason an organism may produce a displacement behaviour is when a goal-orientated behaviour is interfered with or interrupted by different internal or external factors. That is, an individual may produce displacement behaviour when an internal or external factor (such as frustration) hinders achieving a goal (Troisi, 2002).

Interestingly, in primates the experience of anxiety and corresponding displacement behaviours have been found to increase and decrease with anxiogenic and anxiolytic drugs, respectively (Schino, Perretta, Taglioni, Monaco, & Troisi, 1996). Displacement behaviours are also often evident within the context of social anxiety and this is seen when analyzing certain behaviours in primates. Investigations of the evolution of social anxiety proposes that it likely manifested itself as intraspecific competition. It is suggested that the fear of negative evaluation, which is characteristic of social anxiety, likely evolved because providing a good impression often led to the acquisition of limited resources and possible mates (Gilbert, 2002). Being allocated a low social rank likely led to difficulty acquiring essential resources, creating anxiety, which often led to the emergence of displacement, or self-directed behaviours. For example, when primates face conflict with a conspecific, such as aggression in a social situation, self-directed behaviours increase (Castles et al., 1999). These behaviours are similar to those described by Troisi (2002), and include self-scratching and grooming, yawning, body shaking, and self-touching (Castles et al., 1999). By arguing that socially dominant individuals usually instigate the aggression, Castles et al. (1999) provide a possible explanation for the increase of self-directed behaviour. In addition, the emergence of displacement behaviours has been shown to vary depending on proximity and dominance rank of a primate placed physically closest to the primate displaying the self-directed behaviour. However, the research found that dominance rank was not an isolated factor and that general relationship security is associated with anxiety

and corresponding displacement behaviour. Nevertheless, in times of reconciliation of the conflict, self-directed behaviours are seen to decrease (Castles et al., 1999).

Non-Verbal Behaviours. Non-verbal behaviour observed in clinical interviews can be measured with the Ethological Coding Systems for Interviews (ECSI), created by Alfonso Troisi in 1999 (Troisi, 1999). The ECSI provides a measure for 37 distinct behaviours, which can be categorized into five distinct subscales: pro-social (affiliation and submission), flight, assertion, displacement, and relaxation (Troisi, 1999). The particular behavioural manifestations measured within each subscale are proposed to arise from distinct situations or events, all of which are thoroughly described immediately below.

The pro-social subscale is an inclusive subscale, composed of the affiliation and submission subcategories. Both subcategories are thought to reflect the participants' attempts to connect to the interviewer and decrease hostility. The affiliation category can be characterized by expression of friendliness, and the submission category measures the participants' efforts to submit to the interviewer (Troisi, 1999).

The subscale of flight can be characterized by behaviours that suggest the individual is attempting to cease sensory input regarding incoming information that may be threatening or stressful, and measures behaviours within situations (i.e., the interview) that do not allow for the participant to physically flee. Therefore, in response to a potentially threatening social experience, these specific behaviours attempt to avoid the sensory input altogether, essentially cognitively fleeing from the threat (Troisi, 1999).

The remaining subscales include the assertion, the displacement, and the relaxation subscales. The assertion category includes the behaviours measured by the ECSI that indicate a low level of aggression and hostility. The displacement category measures types of self-focused

behaviours, as discussed previously. Finally, the relaxation category measures behaviours associated with low emotional arousal, such as laughing, or settling into a more comfortable position (Troisi, 1999).

It is apparent that the behaviours measured within each subscale of the ECSI could relate to social anxiety. A recent study performed by Adduono et al. (2018) utilized a self-report version of the ECSI, denoted the Ethological Coding Systems for Interviews-Self Report (ECSI-SR). Reliability and validity assessments were conducted to examine the psychometric characteristics of the ECSI-SR, and *t*-tests were executed on the ECSI-SR to the Social Phobia Inventory (SPIN) to analyze the relationship between non-verbal behaviors and social anxiety. Results indicated adequate reliability of the ECSI-SR, with a high internal consistency ($\alpha = .95$), and adequate convergent validity, showing moderate to strong, positive correlations with measures of social anxiety, as well as behavioural manifestations associated with social anxiety. In addition, individuals reporting high levels of social anxiety had stronger endorsement of the specific, non-verbal behaviours measured by the ECSI-SR than those who reported low social anxiety. Similar results were found for each of the subscales and individual items (Adduono et al., 2018). Thus, it appears that the behaviours measured by the ECSI-SR are related to social anxiety and this merits further investigation.

Gaps in the Literature

Much of the evidence regarding SFA apparent in the literature corresponds with the cognitive correlates associated with social anxiety, such as negative thoughts and emotional reactions (Clark & Wells, 1995; Spurr & Stopa, 2002). However, to our knowledge, very few studies have investigated the disparity of report between observer and respondent report of behaviours in conjunction with social anxiety and SFA.

In one study, performed by Kocovski et al. (2015), the results were restricted to specific items on one measure, the Social Phobia Safety Behaviours Scale (SPSBS). It was found that there were significant associations between self-reported use and observer ratings of particular behaviours measured by the SPSBS (Kocovski et al., 2015). In addition, Stevens et al. (2010) found that participants' self-report was echoed by observer report regarding various correlates of social anxiety, such as anxiety level, SFA, and safety behaviours. In particular, the bivariate correlations found between self and observer report were positive and strong for anxiety level, $r(103) = .54$, $p < .001$, and moderate for both SFA, $r(103) = .35$, $p < .001$ and safety behaviours, $r(103) = .28$, $p < .001$. Both types of report (self and observer report) appeared adequate in differentiating between those with social anxiety disorder and those without (Stevens et al., 2010). However, this investigation only looked at the tendency to engage in anxiety-related behaviours, such as safety behaviours. No specific behaviours were mentioned.

Current Investigation

The main purpose of this investigation was to examine disparity between observer and respondent report of behaviour during an experience presumed to generate social anxiety. In particular, this study looked at specific non-verbal behaviours using an established ethogram, the ECSI-SR. To examine this, we compared the self-reported behaviour acquired subsequent to a social anxiety induction to that of observer ratings of the same behaviours viewed from a videotape. Furthermore, we analyzed how both the severity of social anxiety, as well as the level of SFA, influences the disparity of report of behaviour. Research pertaining to this type of accuracy is scarce and therefore, the purpose of our research was to try to begin to fill this gap and provide insight on this disparity and how different factors influence the magnitude.

A secondary purpose of this investigation was to replicate previous findings associated

with the relationships between anxiety-related behaviours (i.e., safety behaviours and the specific non-verbal behaviours outlined above) and social anxiety and SFA. Specifically, we sought to replicate previous findings of a positive relationship between these behaviours and social anxiety (Adduono et al., 2018; Alden & Bieling, 1998; Hirsch et al., 2004; Mcmanus et al., 2008; Wells et al., 1995) and examine the effects that SFA has on these relationships.

Hypotheses

Existing research has identified numerous factors that are associated with social anxiety, such as behavioural responses, cognitive processes, and social correlates. This research has consistently shown that as the severity of social anxiety increases, an increase in both the use of safety and displacement behaviours is often apparent (Castles et al., 1999; Clark & Wells, 1995; Mcmanus et al., 2008; Rowa et al., 2015). A recent investigation by Adduono et al. (2018) found similar results examining the non-verbal behaviours measured by the ECSI-SR. It was found that as the level of social anxiety increases, the emergence of non-verbal behaviours tends to increase as well. In regards to cognitive processes, it has been shown that heightened SFA is often linked to an increased level of social anxiety (Clark & Wells, 1995; Grisham et al., 2014; Hope & Heimberg, 1988; Hope et al., 1987). Finally, Wicklund (1975) suggested that objective self-awareness tends to increase in the presence of a social audience. In light of these findings, the following hypotheses were proposed:

1a. It was hypothesized that there would be a positive relationship between the level of self-reported safety behaviour, as measured by the Subtle Avoidance Frequency Examination (SAFE), and both social anxiety and SFA, as measured by the SPIN and Focus of Attention Questionnaire – Self Focus Subscale (FAQ-SFA), respectively.

1b. It was also hypothesized that there would be a positive relationship between the level of

self-reported non-verbal behaviour, as measured by the ECSI-SR, and both social anxiety and SFA.

2. It was hypothesized that there would be a positive relationship between the level of self-reported social anxiety and the observer-respondent disparity (the difference between observer and respondent report) of reported non-verbal behaviours (this observer-respondent disparity of reported behaviours is henceforth referred to as "disparity"). It was predicted that, relative to observer report, those individuals endorsing high and low levels of social anxiety will over and under report their behaviour, respectively, while those endorsing moderate levels of social anxiety will accurately report their behaviour.
3. Finally, it was hypothesized that there would be a positive relationship between the level of self-reported SFA and the disparity of non-verbal behaviours. It was predicted that those individuals with overly heightened SFA and very little SFA will over and under report their behaviour, respectively, while those endorsing moderate SFA will accurately report their behaviour.

Method

Participants

Participants for this investigation were recruited at Lakehead University in Thunder Bay, Ontario. Data were collected from September 2018 to March 2019 and a total of 106 participants were involved (See Table 1 for sample characteristics). Two observers that were ultimately involved in the project previously participated in the study and their data were removed from the analysis and two participant's data were omitted due to outlier findings. Therefore, the final sample was comprised of 102 students, 72.5% of which were female and

Table 1

Characteristics of the Sample (N = 102)

Demographic	*M*(*SD*)	Frequency	%
Age	21.91 (6.13)		
Sex			
Male		28	27.5%
Female		74	72.5%
Sexual orientation			
Exclusively heterosexual		79	79.0%
Predominately heterosexual, only incidentally homosexual		7	7.0%
Predominately heterosexual, but more than incidentally homosexual		5	5.0%
Equally heterosexual and homosexual		7	7.0%
Predominately homosexual, but more than incidentally heterosexual		2	2.0%
Ethnicity			
Caucasian (White)		66	66.7%
African-Canadian/American (Black)		6	6.1%
Aboriginal (First Nation/Métis/Inuit)		7	7.1%
East Indian		4	4.0%
Asian		9	9.1%
Other		7	7.1%
Relationship status			
Single		60	60.0%
Married/Common law		6	6.0%
Committed relationship		34	34.0%
Stimulants consumed within a 12 hour time frame			
Yes		48	47.1%
No		54	52.9%
Employment status			
Full-time		4	3.9%
Part-time		55	53.9%
Not applicable		43	42.2%
Years of University	2.02 (1.05)		

27.5% were male, ranging between the ages of 15 to 49 (*M* = 21.91, *SD* = 6.13). The sample

was predominantly of Caucasian/White ethnicity (66.7%) and of heterosexual orientation (79.0%). Regarding relationship and educational status, the sample was comprised of predominately single individuals (60.0%), followed by individuals in a committed relationship (34.0%) and approximately half were employed part-time (53.9%). All participants were currently students, with a majority enrolled in their first year of university (41.0%), followed by participants enrolled in their second year (28.0%), and followed closely by those enrolled in their third year (20.0%), and then finally their fourth year (10.0%) of university. The sample also consisted of 43.5% of individuals who indicated "psychology" as either their major or as a supplementary major.

Approximately 28% of participants endorsed a diagnosis of a mental health condition, including generalized anxiety disorder (n = 19), major depressive disorder (n = 14), other (n = 10), social anxiety disorder/social phobia (n = 8), panic disorder/panic attacks (n = 7), learning disability (n = 3), and borderline personality disorder (n = 2). However, only 19.6% of participants indicated that they are receiving counselling or medication for a psychological, emotional, or psychiatric condition in the form of antidepressants (n = 13), individual counselling (n = 10), anti-anxiety medication (n = 6), other (n = 3), or group counselling (n = 1). Participants were also screened for stimulant use within a 12-hour period prior to participation with approximately half of the sample reporting that they have (47.1%). The most common stimulant reported was caffeine (n = 45). Methylphenidate and Lisdexamfetamine were both reported by one participant and 2 participants reported the consumption of a different stimulant.

Participants were given measures to screen for a variety of mental health symptoms (See Table 2 for a summary of results). As a whole, the sample presented with a more positive mood

Table 2

Descriptive Statistics of Mental Health Symptoms (N = 102)

Measure	*N*	*M*	*SD*
Subjective Units of Distress Scale			
Time 1	100	31.26	22.90
Time 2	99	47.85	26.12
Positive and Negative Affect Schedule			
Time 1			
Positive Affect	102	24.94	7.61
Negative Affect	101	15.52	5.18
Time 2			
Positive Affect	100	23.74	8.76
Negative Affect	100	18.23	6.64
Center for Epidemiologic Studies - Depression Scale	99	15.76	8.63
Generalized Anxiety Disorder-7 item	100	6.88	4.56
Social Phobia Inventory	102	36.40	11.12
Personality Research Form			
Desirability Subscale	101	11.00	3.02

(*M* = 24.94, *SD* = 7.61) when compared to a more negative mood (*M* = 15.52, *SD* = 5.18) prior to

the social anxiety induction. This pattern of a more positive mood (M = 23.74, SD = 8.76) compared to a more negative mood (M = 18.23, SD = 6.64) was maintained subsequent to the social anxiety induction, although the disparity seemed to decrease slightly in severity. In addition, the sample overall did not endorse significant depressive symptoms (M = 15.76, SD = 8.63) according to the established cut off of 16 on the Center for Epidemiologic Studies - Depression Scale (CES-D; Radloff, 1977). Furthermore, the overall sample screened as mildly anxious (M = 6.88, SD = 4.56), as measured by the Generalized Anxiety Disorder-7 Item (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006). In regards to social anxiety, the sample endorsed a moderate level of trait social anxiety (M = 36.40, SD = 11.12) according to the cut off established for the Social Phobia Inventory (SPIN; Conner et al., 2000). Finally, the participants varied on their level of social desirability reporting (M = 11.00, SD = 3.02), which ranged from 4 to 16.

Observers

The first pair of observers were two undergraduate students, one male (age 24) and one female (age 21), completing this responsibility for partial fulfillment of a university credit. Both observers were trained together and were given operational definitions of each behaviour on the ECSI-SR. They were then asked to code these behaviours during a variety of mock trials that included both coding individuals sitting in front of them and on a video medium. Both observers were trained for a total of 6 hours. Unfortunately, due to a significant mean difference between their ECSI total scores (rater 1: M = 56.74, SD = 4.56; rater 2: M = 53.91, SD = 3.32), $t(95) = -5.63$, $p < .001$, and a low inter-rater correlation ($r(99) = .24$, $p < .05$), the scores obtained from these observers were not able to be utilized in this investigation. In response to this finding, two new observers were chosen and trained.

The second pair of observers were two incoming graduate students, one male (age 22) and one female (age 25). These observers were trained using the same techniques as described above, however were trained until adequate inter-rater reliability was reached, which required approximately 20.5 hours. Their total scores (rater 1: $M = 58.15$, $SD = 3.86$; rater 2: $M = 58.79$, $SD = 4.14$) were sufficiently correlated, $r(94) = .58$, $p < .001$ and were not significantly different from each other, $t(95) = -1.57$, $p = .120$. Furthermore, their scores reached adequate inter-rater reliability, ICC (2,1) = .575, $p < .001$. These findings were sufficient to continue with the planned analyses.

Measures and Materials

Demographics Questionnaire. Background information, such as the participant's age, sex, sexual orientation, ethnic identity, and relationship status was obtained. Participants were also asked to provide information pertaining to their mental health status and consumption of caffeine or other stimulant 12 hours prior to participation in the study (Appendix A).

Ethological Coding System for Interviews-Self-Report (ECSI-SR; Adduono et al., 2018). The original ECSI is a measure consisting of 37 items that describe nonverbal behaviours that individuals emit during clinical interviews (Troisi, 1999). The ECSI contains several subscales, including pro-social (combination of two sub-categories: affiliation and submission), flight, assertion, displacement, and relaxation (Troisi, 1999). To provide a score, the interview is videotaped and an investigator or a trained observer counts the frequency of each behaviour on the scale that was observed using a specified sampling method. Then, the observer adds the items related to each of the subscales and generates a total score. The ECSI-SR (Appendix B) is a self-report version of the ECSI, which is scored on a 5-point Likert-type scale ranging from 1 (*Never*) to 5 (*Always*). The ECSI-SR was found to have adequate reliability with a high internal

consistency (α = .95), and adequate convergent validity, showing strong, positive correlations with a measure of social anxiety and several measures of behavioural correlates to social anxiety. Specifically, there were strong, positive correlations between the ECSI-SR and the SPIN, $r = .57$, $n = 255$, $p < .001$, and between the ECSI-SR and the Subtle Avoidance Frequency Examination (SAFE), $r = .69$, $n = 248$, $p < .001$. Strong, positive correlations were also found between the ECSI-SR and the SPSBS, $r = .68$, $n = 248$, $p < .001$ and between the ECSI-SR and the Anticipatory Social Behaviours Questionnaire (ASBQ), $r = .67$, $n = 262$, $p < .001$ (Adduono et al., 2018). The instructions of the ECSI-SR were tailored to satisfy the purposes of the present investigation by asking the participants to also estimate the number of times they engaged in each of the behaviours during the social anxiety induction. This measure was used to obtain the self-reported use of anxious behaviours from participants along with the observer ratings of the anxious behaviours utilized by the participants. As well, the questions on the measure were modified slightly to reference the social anxiety induction.

Subtle Avoidance Frequency Examination (SAFE; Cuming et al., 2009). The SAFE (Appendix C) is a 32-item self-report measure of in-situation safety behaviours use. The SAFE is comprised of three factors grouping: restricting behaviours (e.g., *Remain silent*), active behaviours (e.g., *Rehearse sentences in your mind*) and behaviours intended to manage physical symptoms (e.g., *Wear clothes or makeup to hide blushing*; Mitchell & Schmidt, 2014). The SAFE is scored on a 5-point Likert-type scale on how often one would do certain things in a social situation ranging from 1 (*Never*) to 5 (*Always*). The SAFE was found to have adequate reliability with a high internal consistency (α = .91), as well as adequate convergent and divergent validity, correlating strongly with various measures of social anxiety and weakly with different, but related constructs (Cuming et al., 2009). The instructions for the SAFE were

tailored to satisfy the purposes of the present investigation. The participants were instructed to answer the questions as they related to the first-impression activity, as well as were instructed to estimate the number of times they engaged in each of the in-situation safety behaviours. The questions on the SAFE were also modified slightly to reference the first impression activity. This scale was included in this study to obtain the participant's self-reported rating of their own safety behaviour during the anxiety induction.

Social Phobia Inventory (SPIN; Connor et al., 2000). The SPIN (Appendix D) is a 17-item self-report measure, that evaluates fear, avoidance and physical discomfort an individual feels when in a social situation. The scale measures how much the individual has been bothered in the past week by social difficulties (e.g., "*I avoid speaking to anyone in authority*" and "*Being criticized scares me a lot*"). Responses are scored on a 5-point Likert-type scale with values ranging from 0 (*Not at all*) to 4 (*Extremely*). Higher scores suggest higher levels of social anxiety. The SPIN has been found to have adequate reliability, with a Spearman correlation coefficient of .89 and a high internal consistency ($\alpha = .95$; Adduono et al., 2018; Connor et al., 2000). Adequate convergent and divergent validity has also been found (Connor et al., 2000). The SPIN was included in this study to determine the participant's level of trait social anxiety.

Focus of Attention Questionnaire (FAQ; Woody, Chambless, & Glass, 1997). The FAQ (Appendix E) is a 10-item self-report measure assessing the level of SFA subsequent to an event or activity. This measure is comprised of two subscales denoted the self-focus subscale and the external-focus subscale. The self-focus subscale measures the extent to which individuals focus on themselves during a social situation and include items such as "*I was focusing on what I would do next"* and *"I was focusing on my internal bodily reactions (for example, heart rate)".* The external-focus subscale measures the extent to which individuals

focus on their environment rather than themselves and include items such as "*I was focusing on how the other person might be feeling about himself/herself"* and *"I was focused on the other person's appearance or dress"*. Responses are scored on a 5-point Likert-type scale, ranging from 1 (*Not at all*) to 5 (*Totally*). Higher scores suggest higher levels of self-and/or external-focus of attention. Both subscales have adequate to good reliability, with the self-focus subscale having a Cronbach's alpha of .87 and the external-focus subscale having a Cronbach's alpha of .49 (Makkar & Grisham, 2011). This scale was included in this study to assess the participant's focus of attention subsequent to the social anxiety induction.

Subjective Units of Distress Scale (SUDS; Wolpe, 1958). The SUDS (Appendix F) is a single item assessment based on the participant's self-reported anxiety level at the time of assessment. It rates their anxiety between 1 (*totally relaxed*) and 100 (*most anxious that you have ever felt*) with 25, 50 and 75 correlating with mild, moderate and severe degrees of discomfort respectively (Mitchell & Schmidt, 2014; Wolpe, 1958). This scale was included in this study to monitor the participant's state anxiety throughout the course of their participation in the study.

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS (Appendix G) is a 20-item self-report measure assessing two different subscales of affect: negative and positive. The positive affect subscale evaluates feeling states such as being interested, proud, and active. The negative affect subscale evaluates feeling states such as hostility, irritability, and distress. The PANAS scores are rated using a 5-point Likert-type scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Total scores for the positive subscale and the negative subscale provide the final scores, with higher scores indicating higher positive or negative affect. Both subscales have been shown to have adequate psychometric properties,

with strong reliability, with the positive subscale having a Cronbach's α of .89 and the negative subscale having a Cronbach's α of .85, and validity (Crawford & Henry, 2004). The instructions of the PANAS were tailored to instruct the participant to answer based on their feelings and emotions at the present time. In addition, the participant is asked to choose only one number for each word. These alterations were made to satisfy the purposes of the present investigation. This scale was included to monitor participant's affect throughout the course of the study.

Generalized Anxiety Disorder 7-item (GAD-7; Spitzer et al., 2006). The GAD-7 (Appendix H) is a 7-item self-report questionnaire used to screen for generalized anxiety. Individuals answer how often they have been bothered by various problems in the last two weeks (e.g., *Worrying too much about different things*). It is scored on a 4-point Likert-type scale ranging from 0 (*Not at all*) to 3 (*Nearly every day*). The GAD-7 was found to have adequate reliability, with a high test retest reliability (intraclass correlation = .83) and a high internal consistency (α = .92; Spitzer et al., 2006). The GAD-7 also showed good criterion, construct, factorial, and procedural validity (Spitzer et al., 2006). This scale was included as a measure of participants' general level of anxiety and to ensure that the sample was not usually high or low in anxiety level.

Center for Epidemiologic Studies - Depression Scale (CES-D; Radloff, 1977). The CES-D (Appendix I) is a measure of the experience of depressive symptoms during the past week (Radloff, 1977). It is a 20-item self-report measure consisting of questions such as *"I felt that everything I did was an effort"*. Responses range from rarely or none of the time (less than 1 day) to all of the time (5-7 days). Scores are rated on a 4-point Likert-type scale from 0 (*Rarely/none of the time*) to 3 (*All of the time*). Four questions (4, 8, 12, and 16) are reversed scored. Higher scores indicate more severe symptoms. The CES-D has good internal

consistency (approximately .85) within the general population, and also showed moderate test-retest reliability. The internal consistency of the measure was reported to be sufficient with a coefficient alpha of at least .80 (Radloff, 1977). This scale was included as a measure of the participants' depressive symptoms.

Personality Research Form - Social Desirability Scale (PRF-D; Jackson, 1984). The PRF-D (Appendix J) is a subscale of the PRF-E meant to determine if participants respond in a socially desirable way. Items include "*My daily life includes many activities I dislike*" and *"I am never able to do things as well as I should"* and participants indicate whether the statement is true or false (Jackson, 1984). This scale was included in this study to assess participant's tendency to respond in a socially desirable manner.

Personality Research Form - Infrequency Scale (PRF-I; Jackson, 1984). The PRF-I (Appendix K) is a subscale of the PRF-E meant to determine if participants are responding in a careless or a sporadic way. Items, which are proposed to be highly unlikely, include *"Things with sugar in them usually taste sweet to me"* and *"I never had any hair on my head"* and participants indicate whether the statement is true or false (Jackson, 1984). High scores are indicative of a pattern of careless responding. This scale was included to detect random or careless responding. The addition of this scale led to the removal of 2 participants who scored a total of 3 or more.

Study Manipulations

Social Anxiety Induction. For the social anxiety induction, participants were told that they had three minutes to make a good, professional first impression to people watching via videocam. Participants were told that they should talk to the individuals they see on the webcam about themselves and were advised that the individuals have been instructed to only listen and

not talk at any time and under no circumstances. These individuals were not live people but rather a pre-recorded video of confederates (one male and one female; between the approximate ages of 19 and 24) sitting silently and appearing mildly engaged in what the participant is saying.

In addition, participants were videotaped during their session and the tape was later used for the observer ratings of their behaviours. Participants were instructed to sit in front of the computer monitor, approximately 55 inches away. The video camera was placed directly behind the monitor, approximately 58 inches away from the participant. The video camera was placed considerably higher than the monitor, approximately 40 inches up from the table, and captured the participant from the waist up.

A comparison of the average anxiety ratings obtained from the SUDS before (M = 30.94, SD = 22.30) and after the induction (M = 47.96, SD = 26.25) indicated that this method was effective in inducing anxiety, $t(96) = -8.30$, $p < .001$. Based on the aforementioned definition and proposed characteristics of social anxiety, it can be assumed that the anxiety induced by this method could be characterized as social anxiety.

Positive Mood Induction. Subsequent to the post-induction questionnaires, the participants were asked to participate in a positive mood induction. This consisted of a five-minute period where the participants viewed uplifting videos. This method has been shown to be an effective method in inducting positive affect (Zhang, Yu, & Barrett, 2014). These videos included an audio excerpt from *Spring, Summer and Fall* of Vivaldi's Four Seasons playing in the background. This excerpt has been successfully used in other studies to produce a calming effect in participants (Cook, Spring, & McChargue, 2007; Spring et al., 2008).

Procedure

This was a cross-sectional study where participants were invited to participate in an investigation examining factors that influence the effectiveness of first impressions over video-conferencing. This study did include a deceptive aspect as the true nature of the experiment, which involved examining anxiety-related behaviours, was not disclosed to participants during recruitment or during the session. This alternative explanation was crucial, as telling participants that their behaviour will be under assessment could likely make them change the way they behave. To obtain meaningful results, we needed the participants to act as they would in a natural, anxiety-inducing situation.

All participants were currently students enrolled at Lakehead University and attending the Thunder Bay Campus. Participants were recruited using a variety of methods including classroom and email broadcasts (Appendix U), social media advertisements (Appendix T), and poster advertisements (Appendix S) distributed throughout the Lakehead University campus in Thunder Bay. Interested participants were invited to attend a laboratory session and upon arrival received oral and written information about the study (Appendix M), as well as given a consent document (Appendix N) to review. Participants were clearly informed that participation is entirely voluntary and they may withdraw from the study without consequences or the need for justification.

Those who agreed to participate were asked to complete the demographics questionnaire, along with a battery of self-report questionnaires to assess trait anxiety symptoms (SPIN and GAD-7), depressive symptoms (CES-D), desirable responding (PRF-D), and state mood and anxiety (SUDS and PANAS). Next, participants completed the three-minute first-impression video-conference (social anxiety induction) followed by another battery of questionnaires (SUDS, PANAS, SAFE, ECSI-SR, FAQ, and PRF-I). These questionnaires assessed their state

mood and anxiety symptoms, behaviours pertaining to the social anxiety induction, SFA, and infrequent responding. Once this last set of questionnaires were completed, participant were prompted to participate in the positive mood induction in an attempt to reduce any negative mood or anxiety symptoms experienced through participating in the social anxiety induction. Lastly, participants were given an oral debriefing that corresponded to the information they received regarding the purpose of the investigation (i.e., to investigate the factors influencing the effectiveness of a first-impression) and were given an opportunity to ask any questions they may have about the study. A written debriefing letter that corresponds to the oral debrief was given to the participants indicating that further details about the investigation will be provided by email subsequent to the cessation of data collection. Participants were asked to indicate whether they would like to opt-in for this one-time follow up by providing their email address (Appendix P). A copy of this debriefing letter was given to participants to take home (Appendix O). As a token of appreciation, all participants had the option to be entered into a draw to win one of two $25 Visa gift cards and to receive one bonus credit for applicable psychology classes (Appendix R). Upon cessation of data collection, a final debriefing letter was emailed to all participants who provided consent outlining the true intentions and method of the study (Appendix Q).

Two trained research assistants who were blind to the participants' scores on the social anxiety screens and questionnaires subsequently observed the videotapes and recorded the participants' display of non-verbal behaviours. The research assistants completed the same questionnaires pertaining to these behaviours utilized during the social anxiety induction (ECSI-SR) as the participants. A schedule of events can be found in Appendix L.

Statistical Analyses

The Statistical Package for the Social Sciences (SPSS, Version 25) was used to analyze the data in this investigation. Raw data were obtained on paper and pencil questionnaires and entered directly into SPSS manually by a research assistant involved in the project. Data was first examined for errors, outliers, and to verify assumptions for linear regression. Descriptive statistics of the study sample were also generated.

Hypothesis 1a

Hierarchical multiple regression analyses were used to explore the relationship between self-reported safety behaviours (SAFE) and both severity of social anxiety (SPIN) and self-focused attention (SFA). All variables were collected using a Likert-Type scale. Block one consisted of the level of social anxiety, as measured by the SPIN, while block two consisted of the level of SFA, as measured by the FAQ-SFA.

Hypothesis 1b

Similarly, hierarchical multiple regression analyses used to explore the relationship between self-reported non-verbal behaviours (ECSI-SR) and both social anxiety (SPIN) and SFA (FAQ-SFA). Block one consisted of the level of social anxiety, and block two consisted of the level of SFA.

Hypothesis 2

Disparity scores was obtained by finding the difference between the midpoint of the two observer reported non-verbal behaviour scores and each participant's self-reported non-verbal behaviour use. Simple bivariate regression was used to analyze the relationship between severity of social anxiety and disparity report of non-verbal behaviours and to provide essential information regarding how severity of social anxiety influences this disparity report.

Hypothesis 3

Similarly, simple bivariate regression was used to examine the relationship between level of SFA and disparity of non-verbal behaviours, as well as to discover information regarding how the level of SFA possibly influences this disparity report.

Results

Data Screening

Prior to data analysis, the raw data was examined and screened for data-entry errors, missing data, and outliers. Pairwise deletion was used for all analyses in order to account for missing data. As for outlier detection, no outliers were discovered for scale totals. Outliers are defined as a z-score greater than 3.29 or less than -3.29, as reported in literature (Tabachnick & Fidell, 2001). Skewness and kurtosis were examined for all measures used within the analyses and were all of adequate level, falling between -1 and +1.

Infrequent responding was also analyzed for all participants using their PRF-I totals. Any totals exceeding 1 was scrutinized and it was found that four participants scored a 2. A manual inspection of these participant's data was conducted and resulted in no atypical responses detected. It was further found that one participant scored a 3 and another participant scored a 4 on the PRF-I and their data were omitted from the study.

Scale Characteristics and Internal Consistency

The mean, standard deviation, and internal consistency were examined for each main scale used in the analysis. These properties are shown in Table 3. The internal consistencies for all measures were good, with alpha coefficients ranging from .74 to .88. The remaining measures completed by the participants also display adequate internal consistencies, generally ranging from .68 to .91. The exception was the PRF-I, however this was to be expected due to

Table 3

Scale Means, Standard Deviations, and Internal Consistencies

Scale	Mean	Standard Deviation	Internal Consistency
Ethological Coding Systems for Interviews - Self-Report	61.69	13.40	.85
Subtle Avoidance Frequency Examination	58.52	11.04	.76
Social Phobia Inventory	36.40	11.12	.88
Focus of Attention Questionnaire Self	13.87	4.03	.74

the nature of the measure.

Hypothesis 1

Safety Behaviours. Prior to conducting the hierarchical regression, the relevant assumptions of this statistical analysis were tested and met. Examining the normal probability plot (P-P plot) of standardized residuals and the scatter plot of standardized residuals indicated that the residuals were normally distributed and that the data is homoscedastic, respectively. The assumption of linearity between the predictor variables, social anxiety (SPIN) and SFA, and the outcome variable (state its acronym), self-reported safety behaviour, was confirmed by analyzing a scatter plot for each predictor-outcome variable pair. An examination of the correlation between the two variables, r (98) = .47, $p < .001$, revealed that they are not highly correlated. Finally, the data met the assumption of autocorrelation (Durbin-Watson value = 2.27).

Refer to Table 4 for a full summary of the regression statistics. The hierarchical multiple regression revealed that at stage one, social anxiety contributed significantly to the regression model, F (1,86) = 7.60, $p < .05$, and accounted for 8.1% of the variation in self-reported safety behaviour use. Introducing the SFA variable explained an additional 23.3% of the variance and this change in R^2 was significant, F (1,85) = 28.94, $p < .001$. Together, the two variables explained 31.5% of the variation in self-reported safety behaviour use.

Non-Verbal Behaviours. Similar to the hypothesis regarding safety behaviours, the relevant assumptions of this statistical analysis were tested prior to the conduction of the hierarchical regression. The assumption of normality, homoscedasticity, and linearity were all met using the same graphs as described in the previous hypothesis. The independent variables utilized in this analysis were identical to those in the previous analysis and therefore, the assumption of non-multicollinearity was also met. Finally, the data met the assumption of

Note. SPIN = Social Phobia Inventory; FAQ-SFA = Focus of Attention Questionnaire-Self Focus Subscale

Table 4

Summary of Hierarchical Regression Analysis for Social Anxiety and SFA Predicting Self-Reported Safety Behaviour Use (SAFE)

Predictor Variables	B	SE B	*β*	*t*	*p*
Step One					
SPIN	.28	.10	.29	2.76	.007*
Step Two					
SPIN	.05	.10	.05	0.55	.587
FAQ-SFA	1.52	.28	.54	5.38	.001*

* Significant at the .05 level (2-tailed)

autocorrelation (Durbin-Watson value = 1.82).

Refer to Table 5 for a full summary of the regression statistics. The hierarchical multiple regression revealed that at block entry one, social anxiety contributed significantly to the regression model, F (1,93) = 7.41, $p < .05$, and accounted for 7.4% of the variation in self-reported non-verbal behaviours. Introducing the SFA variable explained an additional 2.6% of the variance and this change in R^2 was not significant, F (1,92) = 2.66, $p = .107$.

Hypothesis 2

Again, the relevant assumptions of linear regression were tested prior to conducting the analysis. The assumptions of normality, homoscedasticity, and linearity were all met using the same graphs as previously described, the assumption of autocorrelation was also met using the Durbin-Watson test (Durbin-Watson value = 1.65).

A simple bivariate regression was calculated to predict the disparity of reported non-verbal behaviours based on social anxiety (SPIN). A significant regression equation was found (F (1,89) = 5.82, $p = .018$), with an R^2 of .061, which indicates that 6.1% of the variation in disparity scores is accounted for by social anxiety. Furthermore, disparity scores increased by .29 units with each one unit increase on the SPIN. Refer to Figure 2 for a visual representation of the bivariate regression results.

Hypothesis 3

Similar to the previous hypotheses, prior to the simple bivariate regression analysis being conducted, the relevant assumptions of this analysis were tested. The assumption of normality, homoscedasticity, and linearity were all met using the same means as described in the previous hypotheses and the assumption of autocorrelation was also met using the Durbin-Watson test (Durbin-Watson value = 1.69).

Note. SPIN = Social Phobia Inventory; FAQ-SFA = Focus of Attention Questionnaire-Self Focus Subscale

Table 5

Summary of Hierarchical Regression Analysis for Social Anxiety and SFA Predicting Self-Reported Non-Verbal Behaviours (ECSI-SR)

Predictor Variables	B	SE B	β	*t*	*p*
Step One					
SPIN	.33	.12	.27	2.72	.008*
Step Two					
SPIN	.23	.14	.19	1.72	.089
FAQ-SFA	.60	.37	.18	1.63	.107

* Significant at the .05 level (2-tailed)

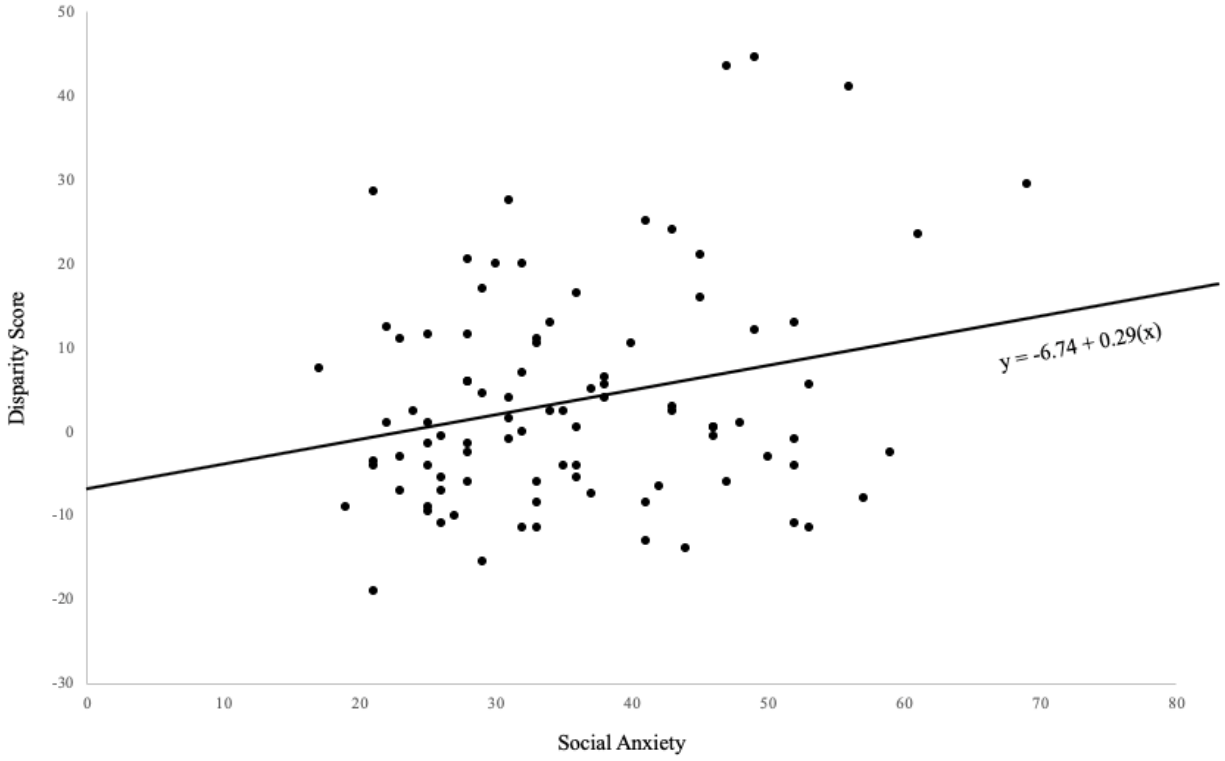


Figure 2. A visual representation of the relationship between SPIN and the disparity of non-verbal behaviour scores.

A simple bivariate regression was calculated to predict the disparity of reported non-verbal behaviours based on SFA (FAQ-SFA). A significant regression equation was found ($F(1,89) = 4.99$, $p = .028$), with an R^2 of .053, which indicates that 5.3% of the variation in disparity scores was accounted for by SFA. Furthermore, disparity scores increased by .74 units with each one unit increase on the FAQ-SFA. Refer to Figure 3 for a visual representation of the bivariate regression results.

Discussion

The present study first intended to replicate previous findings regarding the established relationship between social anxiety and safety behaviour use and to further these findings by examining the role that SFA plays within the relationship. An additional aim of this study was to replicate previous findings corresponding to the relationship between social anxiety and the non-verbal behaviour measured by the ECSI-SR and to further these findings to establish the possible role that SFA plays within this relationship. Results corresponding to the relationship between social anxiety and safety behaviour use appeared to support previous findings that suggested a clear, positive relationship between these two variables (e.g., Clark & Wells, 1995; Rowa et al., 2015). Upon inclusion of SFA into the model, results suggested that this cognitive characteristic of social anxiety may be a strong influence on the relationship. Moreover, results corresponding to the relationship between social anxiety and the non-verbal behaviours measured by the ECSI-SR also appeared to support previous findings that suggested a positive relationship between these two variables (Adduono et al., 2018). However, including SFA into the model did not appear to significantly influence this relationship.

Finally, a primary purpose of this investigation was to examine the disparity experience and how the severity of both social anxiety and level of SFA influences this disparity in scores.

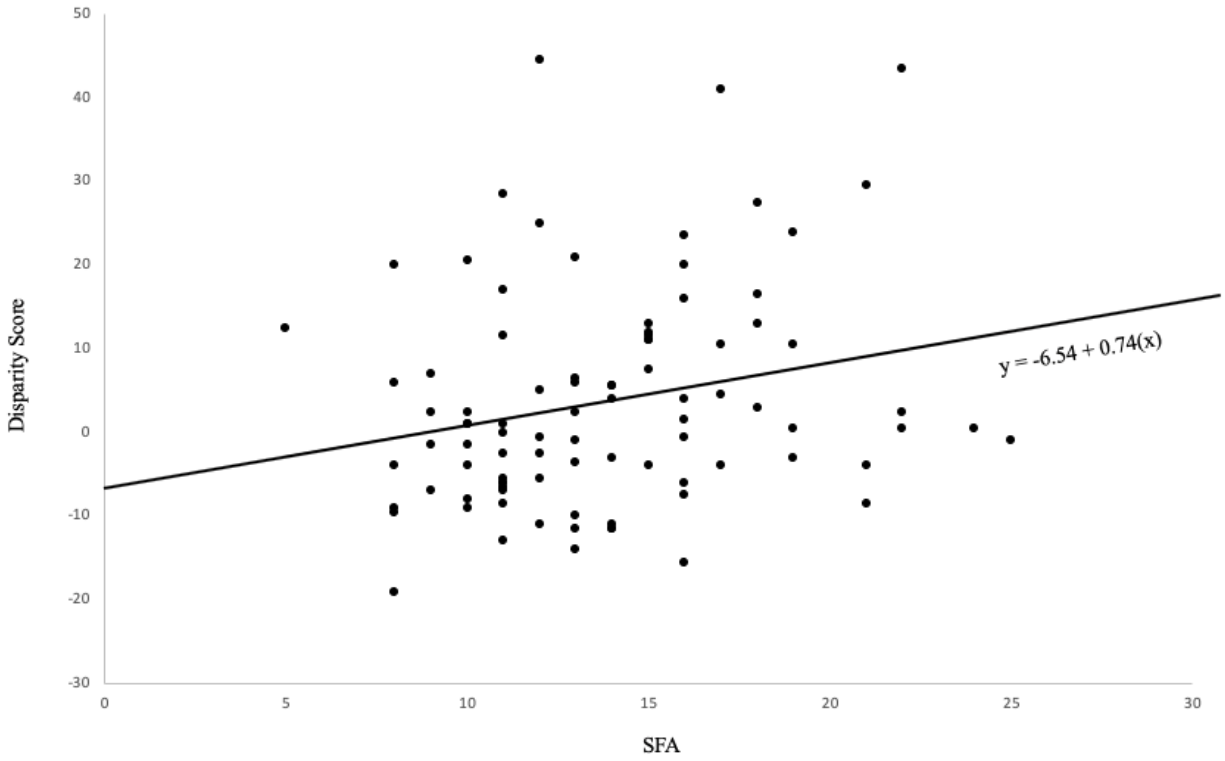


Figure 3. A visual representation of the relationship between SFA and the disparity of non-verbal behaviour scores

Overall, results revealed a similar pattern for both social anxiety and SFA. Results suggested minimal disparity between observer and respondent scores when a moderate level of social anxiety and SFA were apparent. When these levels increased or decreased, the respondent and observer scores became more and more disparate.

Hypothesis 1 Findings

Safety Behaviours. The results of this investigation support the hypothesized positive relationship between safety behaviour use and both social anxiety and SFA. There has been plenty of research to date suggesting a relationship between safety behaviour use and social anxiety (Alden & Bieling, 1998; Hirsch et al., 2004; Mcmanus et al., 2008; Wells et al., 1995). In fact, pivotal researchers in the field of social anxiety have clearly identified safety behaviour use as a significant maintenance factor for the experience of social anxiety (Clark & Wells, 1995). The results of the current study effectively replicated these findings, showing a significant positive relationship between trait social anxiety and safety behaviour use during a socially anxious encounter.

While there is a scarcity of research to date pertaining to effects of SFA on safety behaviour use in particular, there is no lack of evidence to suggest that SFA plays a strong role in the experience of social anxiety (e.g., Bögels & Lamers, 2002; Clark & Wells, 1995; Grisham et al., 2014; Hope et al., 1987; Kley et al., 2012; Vriends et al., 2017). In fact, the current investigation contributed to this evidence as results indicate a strong, positive relationship between social anxiety and SFA, $r\,(102) = .47$, $p < .001$. However, to our knowledge, the current investigation is the first to directly connect the level of SFA with safety behaviour use by analyzing the influence that SFA has on the established relationship between social anxiety and safety behaviour use. Results suggested that SFA plays a large role within the relationship, as

the addition of SFA to the model significantly increased the variability in safety behaviour use by approximately 23%. In other words, SFA accounted for 23% more of the variance than social anxiety did alone. This suggests that SFA greatly influences the relationship between social anxiety and the use of safety behaviours. One possible explanation for this finding revolves around the aforementioned paradoxical situation whereby individuals engaging in safety behaviours to avoid a perceived impending threat, inadvertently create the situation they fear and ultimately reinforce the anxious feelings (Alden & Bieling, 1998; Clark & Wells, 1995; Hirsch et al., 2004; Mcmanus et al., 2008; Plascenia et al., 2011; Wells et al., 1995). This can be elucidated nicely by utilizing the example of the individual attempting to control visibly shaking in public by tightly stiffening their body. Upon engaging in the safety behaviour (i.e., stiffening their body), it is likely that they would begin to notice their body ultimately start to visibly shake, which implies a certain tangible level of SFA. By this point, however, the situation they were afraid of has become the objective reality and the experience of social anxiety has likely set in and the cycle then repeats itself during the next social situation. By analyzing this common example, it is easy to notice that SFA may be inherently linked to this vicious cycle and may provide a logical explanation to the current finding.

Non-Verbal Behaviours. The results of this investigation partially confirmed the hypothesis that there will be a positive relationship between non-verbal behaviours and both social anxiety and SFA. A recent study found that the behaviours measured by the ECSI-SR are differentially endorsed by those with a high level of social anxiety compared to those who report a low level of social anxiety. Specifically, it was found that those individuals who report a high level of social anxiety more commonly endorsed many of these non-verbal behaviours (Adduono et al., 2018). The results of the current investigation replicated these findings, showing a

positive relationship between severity of social anxiety and non-verbal behaviour emergence. In other words, as the severity of social anxiety increases, the emergence of non-verbal behaviour was also shown to increase.

This investigation included the level of SFA in the model to try and delineate this relationship, since SFA is a known cognitive characteristic associated with social anxiety (Bögels & Lamers, 2002; Butler, 1989; Clark & Wells, 1995; Hartman, 1983; Pineles & Mineka, 2005; Schlenker & Leary, 1982; Wicklund, 1975). If results fully confirmed the hypothesis and adding SFA significantly contributed to the overall model, this would have provided some insight into the relationship found between social anxiety and the non-verbal behaviours. Specifically, if including SFA in the model exhibited a significant contribution, it could be argued that SFA is a possible mechanism for the relationship. However, this is not what the results indicated and thus, further investigation is required to uncover the true relationship between social anxiety and the non-verbal behaviours measured by the ECSI-SR.

Hypothesis 2 Findings

The results of the current investigation confirmed the hypothesis posed that a low and high level of social anxiety would result in under and over reporting of non-verbal behaviours, respectively, while a moderate level of social anxiety would result in an approximately accurate level of reporting. A possible explanation for this finding could be associated with SFA, often otherwise referred to as self-awareness (Wicklund, 1975). A positive relationship exists between the severity of social anxiety and the level of SFA (Bögels & Lamers, 2002; Butler, 1989; Clark & Wells, 1995; Hartman, 1983; Pineles & Mineka, 2005; Schlenker & Leary, 1982; Wicklund, 1975). Therefore, individuals with a low level of social anxiety would likely have a corresponding low level of SFA. Intuitively, someone with this personality profile would not

likely feel the social pressure to portray the favourable persona that those with a high level of social anxiety often do and would not likely spend much time with their attention focused inward. Thus, it is likely that these individuals may not have great insight on their true behaviours, which is what is reflected in the current results. Conversely, individuals with a high level of social anxiety would likely have a corresponding high level of SFA. Based on the definition and known characteristics of social anxiety, someone with this profile would very likely feel the social pressure to conform and portray a favourable persona and would spend much of their time with their attention focused inward. It is intuitive that these individuals would pay very close attention to their mannerisms, possibly to the point of overestimation, which is what is reflected by the current results. However, those with a moderate level of reported social anxiety likely spend a proportionate amount of time with their attention focused inward and outward and it could be argued that this proportionality avoided the tendency to under or overestimate their own behaviours, resulting in an adequate level of self-awareness.

Hypothesis 3 Findings

The results confirmed the hypothesis that a low and high level of SFA would result in under and over reporting of non-verbal behaviours, respectively, while a moderate level of SFA would result in an approximately accurate level of reporting. This finding effectively solidifies the conceptual reasoning made regarding the previous hypothesis (i.e., SFA plays a large role in the explanation of why different levels of social anxiety result in differential disparities of report). A possible explanation for this finding could be rooted both in the direct relationship between social anxiety and SFA and within evolution. It is widely understood that a certain level of anxiety is adaptive and was necessary for survival during evolution. A certain level of anxiety has been shown to help different organisms defend themselves from a vast array of threats

(Marks & Nesse, 1994). Social anxiety in particular was likely an evolved response that was developed in reaction to potential intraspecies conflict (Trower & Gilbert, 1989). Existing in a state of inaccurate self-awareness pertaining to behaviours could lead to danger in their social world. Therefore, a certain level of social anxiety is inevitably adaptive and by extension, it is likely that a certain level of SFA is also adaptive. However, too much or too little SFA could be maladaptive, as shown in the current results.

Limitations

The first limitation of this investigation has to do with the observer ratings and their imperfect nature. It is within normal human nature to have individual differences in perception and these individual differences may present in unique interpretations of the same event. For example each individual observer may perceive a certain behaviour more accurately, when compared to the other observer, only because they commonly engage in that behaviour themselves. While both providing rigorous training and statistical measures (i.e., taking the midpoint of the two observers) were used to attempt to minimalize any biases that could be apparent within the observers, these idiosyncratic differences must still be considered.

Another limitation of the current study involves the method utilized, particularly with the social anxiety induction. Both for complete standardization and ease of a timely completion, pre-recorded confederates were used during the social anxiety induction. It is likely that some of the participants may have known about this aspect during participation and it is conceivable that this may have affected the effectiveness of the induction. It is possible that the use of live confederates would have yielded better, more accurate results.

Finally, one last limitation of this study includes its sample demographics and its overall generalizability. The sample was primarily comprised of young, female, Caucasian university

students. Due to the distinct proportion of the sample that fits these characteristics, it is difficult to generalize the findings to other ages or ethnic groups. Furthermore, the sample was comprised from a general, non-clinical population and therefore the results may not be be generalized to a clinical population.

Future Research

This investigation analyzed a variety of hypotheses involving social anxiety, SFA, and anxiety-related behaviour use. One particular hypothesis that was examined included whether SFA influenced the already established relationship between social anxiety and safety behaviour use and results concluded that SFA does play a large role. Future research could benefit from looking at other characteristics of social anxiety, such as negative interpretation biases, to further delineate the relationship.

In addition, this study was only the second to suggest a relationship between social anxiety and the non-verbal behaviours measured by the ECSI-SR. Therefore, future research is warranted, particularly to replicate and solidify this finding. Furthermore, this study failed to identify a possible mechanism in SFA to explain these findings, thus future research focusing on other characteristics of social anxiety are merited to extend the findings.

Future research could also be done utilizing other social anxiety induction methods in order to determine if the findings would be replicated in other situations. For example, simulating a dating situation or speaking more publicly could be used and findings could be compared across the various anxiety-evoking situations.

Finally, a more diverse population could be used in future investigations to improve the overall generalizability of the findings. A clinical sample of individuals diagnosed with social anxiety disorder could also be studied to extend these results in a clinical population.

Conclusions

The purpose of the proposed study was to analyze the relationships between both safety behaviour and non-verbal behaviour emergence with social anxiety and SFA, as well as to investigate disparity between observer and respondent report of individuals' non-verbal behaviour and how social anxiety and SFA influences the magnitude of disparity report. The results suggested a positive relationship between both social anxiety and SFA with safety behaviour use and a positive relationship between only social anxiety with non-verbal behaviour. Both relationships involving social anxiety are replications of previous research and therefore provide further support of those findings. The finding that SFA greatly influences the relationship between social anxiety and safety behaviour use could begin to explain the relationship and allows for investigation into other social anxiety characteristics that could further delineate the relationship.

Results also indicated that individuals with a reported low and high level of social anxiety tended to under and overestimate their tendency to display non-verbal behaviours, respectively, while those who reported moderate levels of social anxiety were more accurate in their report of their behaviours. A similar pattern of results was found for reported SFA level. This finding suggests that reliance on self-reports of these behavioural correlates, as is often done in clinical and research settings, is not an optimal modality to obtain such data. Individuals must first be able to accurately recognize their use of anxiety-related behaviours before they can be targeted in research or treatment and evidence is suggesting that those with high social anxiety have difficulties with this task. Such information also has implications for intervention options, as evidence-based interventions often involve elements of exposure and response prevention.

References

Adduono, D. R., Pope, C. J., & Mazmanian, D. (2018, May). *An ethological approach to the assessment of non-verbal behaviors associated with social anxiety.* Poster presented at the annual convention of the Association for Psychological Science, San Francisco, CA.

Alden, L. E., & Bieling, P. (1998). Interpersonal consequences of the pursuit of safety. *Behaviour Research and Therapy, 36*(1), 53-64. doi:10.1016/s0005-7967(97)00072-7

American Psychiatric Association [APA]. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Washington, DC: *Author*.

Butler, G. (1989). Issues in the application of cognitive and behavioral strategies to the treatment of social phobia. *Clinical Psychology Review*, *9*(1), 91-106. doi:10.1016/0272-7358(89)90049-4

Bögels, S., & Lamers, C. (2002). The causal role of self-awareness in blushing-anxious, socially-anxious and social phobics individuals. *Behaviour Research and Therapy*, *40*(12), 1367-1384. doi:10.1016/s0005-7967(01)00096-1

Cacioppo, J. T., Glass, C. R., & Merluzzi, T. V. (1979). Self-statements and self-evaluations: A cognitive-response analysis of heterosocial anxiety. *Cognitive Therapy and Research, 3*(3), 249-262. doi:10.1007/bf01185965

Castles, D. L., Whiten, A., & Aureli, F. (1999). Social anxiety, relationships and self-directed behaviour among wild female olive baboons. *Animal Behaviour, 58*(6), 1207-1215. doi:10.1006/anbe.1999.1250

Clark, J. V., & Arkowitz, H. (1975). Social anxiety and self-evaluation of interpersonal performance. *Psychological Reports, 36*(1), 211-221. doi:10.2466/pr0.1975.36.1.211

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R.

Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment* (pp. 69-93). New York: Guilford Press.

Connor, K. M., Davidson, J. R., ChurchilL, L. E., Sherwood, A., Foa, E., & Weisler, R. H. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-rating scale. *The British Journal of Psychiatry, 176*(4), 379-386. doi:10.1192/bjp.176.4.379

Cook, J. W., Spring, B., & McChargue, D. (2007). Influence of nicotine on positive affect in anhedonic smokers. *Psychopharmacology, 192*(1), 87-95. doi:10.1007/s00213-006-0688-5

Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 43*, 245-265. doi: 10.1348/0144665031752934

Cuming, S., Rapee, R. M., Kemp, N., Abbott, M. J., Peters, L., & Gaston, J. E. (2009). A self-report measure of subtle avoidance and safety behaviors relevant to social anxiety: Development and psychometric properties. *Journal of Anxiety Disorders, 23*(7), 879-883. doi:10.1016/j.janxdis.2009.05.002

Curran, J. P. (1977). Skills training as an approach to the treatment of heterosexual-social anxiety: A review. *Psychological Bulletin, 84*(1), 140-157. doi:10.1037/0033-2909.84.1.140

Duval, S., & Wicklund, R. A. (1972). *A theory of objective self awareness*. Oxford, England: Academic Press.

George, L., & Stopa, L. (2008). Private and public self-awareness in social anxiety. *Journal of Behavior Therapy and Experimental Psychiatry*, *39*(1), 57-72. doi:10.1016/j.jbtep.2006.09.004

Gerlach, A. L., Mourlane, D., & Rist, F. (2004). Public and private heart rate feedback in social phobia: a manipulation of anxiety visibility. *Cognitive Behaviour Therapy*, *33*(1), 36-45. doi:10.1080/16506070310014682

Gilbert, P. (2002). Evolution and social anxiety: The role of attraction, social competition, and social hierarchies. *The Psychiatric Clinics of North America*, *24*(4), 723-751.

Grisham, J. R., King, B. J., Makkar, S. R., & Felmingham, K. L. (2014). The contributions of arousal and self-focused attention to avoidance in social anxiety. *Anxiety, Stress, & Coping*, *28*(3), 303-320. doi:10.1080/10615806.2014.968144

Hartman, L. M. (1983). A metacognitive model of social anxiety: Implications for treatment. *Clinical Psychology Review*, *3*(4), 435-456. doi:10.1016/0272-7358(83)90023-5

Hirsch, C., Meynen, T., & Clark, D. (2004). Negative self-imagery in social anxiety contaminates social interactions. *Memory, 12*(4), 496-506. doi:10.1080/09658210444000106

Hodson, K. J., McManus, F. V., Clark, D. M., & Doll, H. (2008). Can clark and wells' (1995) cognitive model of social phobia be applied to young people? *Behavioural and Cognitive Psychotherapy*, *36*(4). doi:10.1017/s1352465808004487

Hofmann, S. G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy, 36*(4), 193-209. doi:10.1080/16506070701421313

Hope, D. A., Gansler, D. A., & Heimberg, R. G. (1989). Attentional focus and causal attributions in social phobia: Implications from social psychology. *Clinical Psychology Review*, *9*(1), 49-60. doi:10.1016/0272-7358(89)90046-9

Hope, D. A., & Heimberg, R. G. (1988). Public and private self-consciousness and social phobia. *Journal of Personality Assessment*, *52*(4), 626-639. doi:10.1207/s15327752jpa5204_3

Hope, D. A., Heimberg, R. G., Zollo, L. J., Nyman, D. J., & O'Brien, G. T. (1987, November). *Thought listing in the natural environment: Valence and focus of listed thoughts among socially anxious and nonanxious subjects.* Presented at the annual meeting of the Association for the Advancement of Behavioural Therapy, Boston, MA.

Hunter, L. R., Buckner, J. D., & Schmidt, N. B. (2009). Interpreting facial expressions: The influence of social anxiety, emotional valence, and race. *Journal of Anxiety Disorders, 23*(4), 482-488. doi:10.1016/j.janxdis.2008.10.004

Jackson, D. N. (1984). *Personality research form manual* (3rd ed.). Port Huron, MI: Research Psychologists Press.

Kley, H., Tuschen-Caffier, B., & Heinrichs, N. (2012). Safety behaviors, self-focused attention and negative thinking in children with social anxiety disorder, socially anxious and non-anxious children. *Journal of Behavior Therapy and Experimental Psychiatry*, *43*(1), 548-555. doi:10.1016/j.jbtep.2011.07.008

Knappe, S., Beesdo, K., Fehm, L., Lieb, R., & Wittchen, H. (2008). Associations of familial risk factors with social fears and social phobia: Evidence for the continuum hypothesis in social anxiety disorder? *Journal of Neural Transmission, 116*(6), 639-648. doi:10.1007/s00702-008-0118-4

Kocovski, N. L., Mackenzie, M. B., Albiani, J. J., Battista, S. R., Noel, S., Fleming, J. E., & Antony, M. M. (2015). Safety behaviors and social anxiety: An examination of the social phobia safety behaviours scale. *Journal of Psychopathology and Behavioral Assessment, 38*(1), 87-100. doi:10.1007/s10862-015-9498-6

Makkar, S. R., & Grisham, J. R. (2011). Social anxiety and the effects of negative self-imagery on emotion, cognition, and post-event processing. *Behaviour Research and Therapy*, *49*(10), 654-664. doi:10.1016/j.brat.2011.07.004

Mallott, M. A., Maner, J. K., Dewall, N., & Schmidt, N. B. (2009). Compensatory deficits following rejection: The role of social anxiety in disrupting affiliative behavior. *Depression and Anxiety, 26*(5), 438-446. doi:10.1002/da.20555

Mansell, W., Clark, D. M., & Ehlers, A. (2003). Internal versus external attention in social anxiety: an investigation using a novel paradigm. *Behaviour Research and Therapy*, *41*(5), 555-572. doi:10.1016/s0005-7967(02)00029-3

Marks, I. F., & Nesse, R. M. (1994). Fear and fitness: An evolutionary analysis of anxiety disorders. *Ethology and Sociobiology*, *15*(5-6), 247-261. doi:10.1016/0162-3095(94)90002-7

Mcmanus, F., Sacadura, C., & Clark, D. M. (2008). Why social anxiety persists: An experimental investigation of the role of safety behaviours as a maintaining factor. *Journal of Behavior Therapy and Experimental Psychiatry, 39*(2), 147-161. doi:10.1016/j.jbtep.2006.12.002

Merikangas, K. R., Avenevoli, S., Acharyya, S., Zhang, H., & Angst, J. (2002). The spectrum of social phobia in the Zurich cohort study of young adults. *Biological Psychiatry, 51*(1), 81-91. doi:10.1016/s0006-3223(01)01309-9

Mitchell, M. A., & Schmidt, N. B. (2014). General in-situation safety behaviors are uniquely associated with post-event processing. *Journal of Behavior Therapy and Experimental Psychiatry, 45*(2), 229-233. doi:10.1016/j.jbtep.2013.11.001

Ohayon, M. M., & Schatzberg, A. F. (2010). Social phobia and depression: Prevalence and comorbidity. *Journal of Psychosomatic Research, 68*(3), 235-243. doi:10.1016

Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R. W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 224-239). New York: Guilford Press.

Piccirillo, M. L., Taylor Dryman, M., & Heimberg, R. G. (2016). Safety behaviors in adults with social anxiety: Review and future directions. *Behavior Therapy*, *47*(5), 675-687. doi:10.1016/j.beth.2015.11.005

Pineles, S. L., & Mineka, S. (2005). Attentional biases to internal and external sources of potential threat in social anxiety. *Journal of Abnormal Psychology*, *114*(2), 314-318. doi:10.1037/0021-843x.114.2.314

Plasencia, M. L., Alden, L. E., & Taylor, C. T. (2011). Differential effects of safety behaviour subtypes in social anxiety disorder. *Behaviour Research and Therapy, 49*(10), 665-675. doi:10.1016/j.brat.2011.07.005n

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385-401. doi:10.1177/014662167700100306

Rapaport, M. H., Clary, C., Fayyad, R., & Endicott, J. (2005). Quality-of-life impairment in depressive and anxiety disorders. *American Journal of Psychiatry, 162*(6), 1171-1178. doi:10.1176/appi.ajp.162.6.1171

Rehm, L. P., & Marston, A. R. (1968). Reduction of social anxiety through modification of self-reinforcement: An instigation therapy technique. *Journal of Consulting and Clinical Psychology, 32*(5, Pt.1), 565-574. doi:10.1037/h0026406

Regier, D. A., Rae, D. S., Narrow, W. E., Kaelber, C. T., Schatzberg, A. F. (1998). Prevalence of anxiety disorders and their comorbidity with mood and addictive disorders. *The British Journal of Psychiatry*, *173*(34), 24-28.

Rowa, K., Paulitzki, J. R., Ierullo, M. D., Chiang, B., Antony, M. M., McCabe, R. E., & Moscovitch, D. A. (2015). A false sense of security: Safety behaviors erode objective speech performance in individuals with social anxiety disorder. *Behavior Therapy, 46*(3), 304-314. doi:10.1016/j.beth.2014.11.004

Safren, S. A., Heimberg, R. G., Brown, E. J., & Holle, C. (1996). Quality of life in social phobia. *Depression and Anxiety, 4*(3), 126-133. doi:10.1002/(sici)1520-6394(1996)4:33.0.co;2-e

Schino, G., Perretta, G., Taglioni, A. M., Monaco, V., & Troisi, A. (1996). Primate displacement activities as an ethopharmacological model of anxiety. *Anxiety, 2*(4), 186-191. doi:10.1002/(sici)1522-7154(1996)2:43.0.co;2-m

Schlenker, B. R., & Leary, M. R. (1982). Social anxiety and self-presentation: A conceptualization model. *Psychological Bulletin, 92*(3), 641-669. doi:10.1037/0033-2909.92.3.641

Silvia, P. J., & Gendolla, G. H. (2001). On introspection and self-perception: Does self-focused attention enable accurate self-knowledge? *Review of General Psychology*, *5*(3), 241-269. doi:10.1037//1089-2680.5.3.241

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine, 166*(10), 1092.

doi:10.1001/archinte.166.10.1092

Spring, B., Cook, J. W., Appelhans, B., Maloney, A., Richmond, M., Vaughn, J., . . . Hedeker, D. (2008). Nicotine effects on affective response in depression-prone smokers. *Psychopharmacology, 196*(3), 461-471. doi:10.1007/s00213-007-0977-7

Spurr, J. M., & Stopa, L. (2002). Self-focused attention in social phobia and social anxiety. *Clinical Psychology Review*, *22*(7), 947-975. doi:10.1016/s0272-7358(02)00107-1

Stevens, S., Hofmann, M., Kiko, S., Mall, A. K., Steil, R., Bohus, M., & Hermann, C. (2010). What determines observer-rated social performance in individuals with social anxiety disorder? *Journal of Anxiety Disorders*, *24*(8), 830-836. doi:10.1016/j.janxdis.2010.06.005

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.

Troisi, A. (1999). Ethological research in clinical psychiatry: The study of nonverbal behavior during interviews. *Neuroscience & Biobehavioral Reviews, 23*(7), 905-913. doi:10.1016/s0149-7634(99)00024-x

Troisi, A. (2002). Displacement activities as a behavioral measure of stress in nonhuman primates and human subjects. *Stress, 5*(1), 47-54. doi:10.1080/102538902900012378

Trower, P., & Gilbert, P. (1989). New theoretical conceptions of social anxiety and social phobia. *Clinical Psychology Review, 9*(1), 19-35. doi:10.1016/0272-7358(89)90044-5

Voncken, M. J., & Bögels, S. M. (2009). Physiological blushing in social anxiety disorder patients with and without blushing complaints: Two subtypes? *Biological Psychology*, *81*(2), 86-94. doi:10.1016/j.biopsycho.2009.02.004

Vriends, N., Bolt, O. C., Meral, Y., Meyer, A. H., Bögels, S., & Wilhelm, F. H. (2016). Does self-focused attention in social anxiety depend on self-construal? Evidence from a probe detection paradigm. *Journal of Experimental Psychopathology*, *7*(1), 18-30. doi:10.5127/jep.041514

Vriends, N., Meral, Y., Bargas-Avila, J. A., Stadler, C., & Bögels, S. M. (2017). How do I look? Self-focused attention during a video chat of women with social anxiety (disorder). *Behaviour Research and Therapy*, *92*, 77-86. doi:10.1016/j.brat.2017.02.008

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070. doi: 10.1037/0022-3514.54.6.1063

Wells, A., Clark, D. M., & Ahmad, S. (1998). How do I look with my minds eye: Perspective taking in social phobic imagery. *Behaviour Research and Therapy*, *36*(6), 631-634. doi:10.1016/s0005-7967(98)00037-0

Wells, A., Clark, D. M., Salkovskis, P., Ludgate, J., Hackmann, A., & Gelder, M. (1995). Social phobia: The role of in-situation safety behaviors in maintaining anxiety and negative beliefs. *Behavior Therapy, 26*(1), 153-161. doi:10.1016/s0005-7894(05)80088-7

Wicklund, R. A. (1975). Objective self-awareness. *Advances in Experimental Social Psychology*, *8*, 233-275. doi:10.1016/s0065-2601(08)60252-x

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition*. Stanford, CA: Stanford University Press.

Wong, Q. J., & Rapee, R. M. (2016). The aetiology and maintenance of social anxiety disorder: A synthesis of complimentary theoretical models and formulation of a new integrated model. *Journal of Affective Disorders, 203*, 84-100. doi:10.1016/j.jad.2016.05.069

Woody, S. R., Chambless, D. L., & Glass, C. R. (1997). Self-focused attention in the treatment of social phobia. *Behaviour Research and Therapy*, *35*(2), 117-129. doi:10.1016/s0005-7967(96)00084-8

Zhang, X., Yu, H. W., & Barrett, L. F. (2014). How does this make you feel? A comparison of four affect induction procedures. *Frontiers in Psychology, 5*, 689. doi:10.3389/fpsyg.2014.00689

Appendices

Participant ID: _____ Date: _____

1. **Age:** _____

2a. **Sex:**

☐ Male ☐ Female ☐ Neither

2b. **Please indicate your preferred gender designation (e.g., agender, bigender, etc.):** _____

_____

3. **Sexual Orientation:**

☐ Exclusively heterosexual
☐ Predominantly heterosexual, only incidentally homosexual
☐ Predominantly heterosexual, but more than incidentally homosexual
☐ Equally heterosexual and homosexual
☐ Predominantly homosexual, but more than incidentally heterosexual
☐ Predominantly homosexual, only incidentally heterosexual
☐ Exclusively homosexual
☐ Other (*Please Specify*): _____

_____

4. **What is your ethnic identity?**

☐ Caucasian (White) ☐ African-Canadian/American (Black)
☐ Hispanic/Latino ☐ Aboriginal (First Nation, Métis, Inuit)
☐ East Indian ☐ Asian
☐ Other (*Please Specify*): _____

5. **What is your current relationship status?**

☐ Single ☐ Married/common law
☐ Committed relationship ☐ Widowed
☐ Other (*Please Specify*): _____

_____

6a. **Did you move from outside of Thunder Bay to attend Lakehead University (Thunder Bay campus)?**

☐ Yes ☐ No

6b. **Where are you from?**

☐ Urban Area (e.g., a city, town, or suburb) ☐ Not Applicable - I am from Thunder Bay
☐ Rural Area
☐Other (*Please Specify*): _____

Participant ID: _____ Date: _____

7a. **Employment Status:**

☐ Full-time employment ☐ Part-time employment ☐ Not applicable

7b. **Do you support yourself financially?**

☐ Yes ☐ No

8a. **Do you live alone?**

☐ Yes ☐ No

8b. **How many individuals live in your house (including yourself)?**

☐ 1 ☐ 2 ☐ 3 ☐ 4+

9. **If you support yourself, what is your estimated personal annual income?**

☐ $1 - $24999 ☐ $25000 - $49999 ☐ $50000+

☐ Not applicable - I do not have a personal income

10. **If you are supported by your family income, what is your estimated family income?**

☐ $1 - $24999 ☐ $25000 - $49999 ☐ $50000 - $74999

☐ $75000 - $99999 ☐ $100000 - $149999 ☐ $150000+

☐ I am financially supported by my family but cannot estimate my family income

☐ Not applicable - I am not financially supported by my family

11a. **Educational Status:**

☐ Full-time student ☐ Part-time student

11b. **Type of Student:**

☐ Domestic student ☐ International student

12. **Year of University:**

☐ First year ☐ Second year

☐ Third year ☐ Fourth year

☐ Other (*Please Specify*): _____

13a. **Have you declared a major?**

☐ Yes ☐ No

13b. **If yes, what is your major?** _____

13c. **Is it an Honours Bachelor degree?**

☐ Yes ☐ No

13d. **If you are a Psychology major, please indicate whether it is a science or an arts degree:**

☐ Science ☐ Arts ☐ Not applicable

Participant ID: _____ Date: _____

14. **Please indicate if you ever received a diagnosis of any of the following conditions:**

Major depressive disorder	☐ Yes	☐ No
Bipolar disorder	☐ Yes	☐ No
Generalized anxiety disorder	☐ Yes	☐ No
Social anxiety / Social phobia	☐ Yes	☐ No
Borderline personality disorder	☐ Yes	☐ No
Learning disability	☐ Yes	☐ No
Panic disorder / Panic attacks	☐ Yes	☐ No
Avoidant personality disorder	☐ Yes	☐ No

☐ Other (*Please Specify*): _____

_____

15a. **Are you currently receiving counselling, therapy, or medication for a psychological, emotional, or psychiatric condition(s)?**

☐ Yes ☐ No

15b. **If yes, please check all that are applicable:**

☐ Antidepressant medication ☐ Antipsychotic medication
☐ Antianxiety medication ☐ Group counselling
☐ Individual counselling
☐ Other (*Please Specify*): _____

_____

16a. **Have you taken any stimulants such as caffeine or energy drinks in the past 12 hours?**

☐ Yes ☐ No ☐ Unsure

16b. **If yes, which stimulants have you taken?**

Caffeine (e.g., coffee, tea, energy drinks, soft drinks, etc.)	☐ Yes	☐ No
Amphetamine	☐ Yes	☐ No
Methylphenidate (Ritalin, Metadate, Concerta)	☐ Yes	☐ No
Dexmethylphenidate (Focalin)	☐ Yes	☐ No
Dextroamphetamine (Dexedrine, Zenzedi)	☐ Yes	☐ No
Mixed amphetamine salts (Adderall)	☐ Yes	☐ No
Dextromethamphetamine (Desoxyn)	☐ Yes	☐ No
Lisdexamfetamine (Vyvanse)	☐ Yes	☐ No

☐ Other (*Please Specify*): _____

_____

_____

Participant ID: _____ Date: _____

17a. **Do you tend to drink alcohol prior to a social situation?**
☐ Never ☐ Sometimes ☐ Often ☐ Always

17b. **Do you tend to drink alcohol following a social situation?**
☐ Never ☐ Sometimes ☐ Often ☐ Always

17c. **Do you tend to use marijuana prior to a social situation?**
☐ Never ☐ Sometimes ☐ Often ☐ Always

17d. **Do you tend to use marijuana following a social situation?**
☐ Never ☐ Sometimes ☐ Often ☐ Always

17e. **Do you tend to use any other substance prior to a social situation?**
☐ Never ☐ Sometimes ☐ Often ☐ Always

17f. **Do you tend to use any other substance following a social situation?**
☐ Never ☐ Sometimes ☐ Often ☐ Always

Participant ID: _____ Date: _____

The following items ask you about behaviours that some people engage in.
In column A, please circle the option that best characterizes what you did during the first impression activity.
In column B, please estimate (guess) the number of times you believe you engaged in each behaviour described during the first impression activity.

Thinking about the first impression activity you just participated in…….	**Column A.** **1 = Never** **2 = Occasionally** **3 = Sometimes** **4 = Often** **5 = Always**	**Column B.** Guess how many times you engaged in the behaviour
1. I looked at the videocam	**1 2 3 4 5**	_____ times
2. I tilted my head to one side	**1 2 3 4 5**	_____ times
3. I made a sharp upwards movement of my head, rather like an inverted nod	**1 2 3 4 5**	_____ times
4. I quickly raised and lowered my eyebrows	**1 2 3 4 5**	_____ times
5. My eyebrows were raised and kept up for some time	**1 2 3 4 5**	_____ times
6. My lip corners were drawn back and up	**1 2 3 4 5**	_____ times
7. I made a normal affirmative gesture of a nod	**1 2 3 4 5**	_____ times
8. My lips were drawn slightly in and pressed together	**1 2 3 4 5**	_____ times
9. The corners of my mouth were drawn back but not raised as in smile	**1 2 3 4 5**	_____ times
10. I looked away from the videocam	**1 2 3 4 5**	_____ times
11. I looked down at my feet, lap or floor	**1 2 3 4 5**	_____ times
12. My eyes closed	**1 2 3 4 5**	_____ times
13. My chin was drawn in towards the chest	**1 2 3 4 5**	_____ times
14. My body was bent right forward till my head was near my knees	**1 2 3 4 5**	_____ times
15. I had a sudden cessation of movement, a freezing	**1 2 3 4 5**	_____ times
16. I had a normal negative gesture of a shake	**1 2 3 4 5**	_____ times
17. I made a sharp forward movement of my head towards the videocam	**1 2 3 4 5**	_____ times
18. I leaning forward from my hips towards the videocam	**1 2 3 4 5**	_____ times
19. My eyebrows were drawn together and lowered at the center	**1 2 3 4 5**	_____ times
20. My shoulders were raised and dropped again	**1 2 3 4 5**	_____ times

Participant ID: _____ Date: _____

The following items ask you about behaviours that some people engage in.
In column A, please circle the option that best characterizes what you did during the first impression activity.
In column B, please estimate (guess) the number of times you believe you engaged in each behaviour described during the first impression activity.

Thinking about the first impression activity you just participated in…….	**Column A.** **1 = Never** **2 = Occasionally** **3 = Sometimes** **4 = Often** **5 = Always**	**Column B.** Guess how many times you engaged in the behaviour
21. My lip corners were brought towards each other so that my mouth looked small	**1 2 3 4 5**	_____ times
22. I made a wrinkling of my skin on the bridge of my nose	**1 2 3 4 5**	_____ times
23. I had variable hand and arm movements used during speech	**1 2 3 4 5**	_____ times
24. My fingers were passed through my hair in a combing movement	**1 2 3 4 5**	_____ times
25. My hand(s) were in contact with my face	**1 2 3 4 5**	_____ times
26. My hand(s) were in contact with my mouth	**1 2 3 4 5**	_____ times
27. My fingernails were used to scratch part of the body, frequently my head	**1 2 3 4 5**	_____ times
28. My mouth opened widely, roundly and fairly slowly, closing more swiftly. My mouth movement was accompanied by a deep breath and often closing of my eyes and lowering of my brows	**1 2 3 4 5**	_____ times
29. I made twisting and fiddling finger movements, with wedding ring, handkerchief, other hand, etc.	**1 2 3 4 5**	_____ times
30. My lips were closed, pushed forward and twisted to one side	**1 2 3 4 5**	_____ times
31. My tongue passed over my lips	**1 2 3 4 5**	_____ times
32. My one lip, usually my lower, was drawn into my mouth and held between my teeth	**1 2 3 4 5**	_____ times
33. I engaged in an obvious loosening of muscle tension so that my whole body relaxes in the chair	**1 2 3 4 5**	_____ times
34. I adjusted movement into a more comfortable posture in the chair	**1 2 3 4 5**	_____ times
35. My arms were folded across my chest	**1 2 3 4 5**	_____ times
36. My mouth corners were drawn up and out, remaining pointed, my lips parting to reveal some of my upper and lower teeth	**1 2 3 4 5**	_____ times
37. My face was without expression and without particular muscular tension. It was the basic awake face	**1 2 3 4 5**	_____ times

Participant ID: _____ Date: _____

Some people do the following things when they feel anxious in social situations.
In column A, please rate how often you believe you engaged in the following behaviours during the first-impression activity?
In column B, please estimate (guess) the number of times you believe you engaged in each behaviour described during the first impression activity [not applicable for blacked out boxes].

Thinking about the first impression activity you just participated in, did you…….	**Column A.** **1 = Never** **2 = Occasionally** **3 = Sometimes** **4 = Often** **5 = Always**	**Column B.** How many times did you engage in the behavior?
1. (Before you arrived) excessively rehearsed what you might say or how you might behave	**1 2 3 4 5**	
2. Remained silent	**1 2 3 4 5**	_____ times
3. Tried to keep tight control of your behaviour	**1 2 3 4 5**	_____ times
4. Spoke softly	**1 2 3 4 5**	_____ times
5. Said 'I'm not usually like this'	**1 2 3 4 5**	_____ times
6. Blanked out or switched off mentally	**1 2 3 4 5**	_____ times
7. Held your arms still	**1 2 3 4 5**	_____ times
8. Spent time thinking of good excuses for escaping	**1 2 3 4 5**	_____ times
9. Wore cool clothes to prevent sweating	**1 2 3 4 5**	
10. Avoided eye contact	**1 2 3 4 5**	_____ times
11. Wore clothes or makeup to hide blushing	**1 2 3 4 5**	
12. Said "it's hot" to explain sweating or blushing	**1 2 3 4 5**	_____ times
13. Accounted for poor performance by saying that you didn't have time to prepare	**1 2 3 4 5**	_____ times
14. Rehearsed sentences in your mind	**1 2 3 4 5**	
15. Spent hours on grooming prior to the situation	**1 2 3 4 5**	
16. Wore clothes that will conceal sweating if it occurs	**1 2 3 4 5**	
17. Said that you are sick/unwell	**1 2 3 4 5**	_____ times
18. Looked closely at other people and tried to gauge their reactions to you	**1 2 3 4 5**	_____ times
19. Avoided asking questions	**1 2 3 4 5**	_____ times
20. Spoke in short sentences	**1 2 3 4 5**	_____ times
21. Kept still to avoid drawing attention to yourself	**1 2 3 4 5**	_____ times
22. Hid your face	**1 2 3 4 5**	_____ times
23. Made excuses about your appearance	**1 2 3 4 5**	_____ times
24. Checked the redness of your face in a mirror	**1 2 3 4 5**	_____ times
25. Tried to think about other things	**1 2 3 4 5**	_____ times
26. Tried to think of reasons why the other person is inferior to you	**1 2 3 4 5**	_____ times
27. Avoided pauses in speech	**1 2 3 4 5**	_____ times
28. Positioned yourself so as not to be noticed	**1 2 3 4 5**	_____ times
29. Held your cup or glass tightly	**1 2 3 4 5**	_____ times
30. Asked others about your performance	**1 2 3 4 5**	_____ times
31. Imagined you were somewhere else	**1 2 3 4 5**	_____ times
32. Were reserved about what you said	**1 2 3 4 5**	_____ times

Participant ID: _____ Date: _____

Please indicate how much the following problems have bothered you during the **past week**. Please mark only one answer for each item.

1 = Not at all
2 = A little bit
3 = Somewhat
4 = Very much
5 = Extremely

[Circle the score that represents your answer]

1. I am afraid of people in authority	**1**	**2**	**3**	**4**	**5**
2. I am bothered by blushing in front of people	**1**	**2**	**3**	**4**	**5**
3. Parties and social events scare me	**1**	**2**	**3**	**4**	**5**
4. Drinking with others in public places	**1**	**2**	**3**	**4**	**5**
5. Being criticized scares me a lot	**1**	**2**	**3**	**4**	**5**
6. Fear of embarrassment causes me to avoid doing things or speaking to people	**1**	**2**	**3**	**4**	**5**
7. Sweating in front of people causes me distress	**1**	**2**	**3**	**4**	**5**
8. I avoid going to parties	**1**	**2**	**3**	**4**	**5**
9. I avoid activities in which I am the center of attention	**1**	**2**	**3**	**4**	**5**
10. Talking to strangers scares me	**1**	**2**	**3**	**4**	**5**
11. I avoid having to give speeches	**1**	**2**	**3**	**4**	**5**
12. I would do anything to avoid being criticized	**1**	**2**	**3**	**4**	**5**
13. Heart palpitations bother me when I am around people	**1**	**2**	**3**	**4**	**5**
14. I am afraid of doing things when people might be watching	**1**	**2**	**3**	**4**	**5**
15. Being embarrassed or looking stupid is among my worst fears	**1**	**2**	**3**	**4**	**5**
16. I avoid speaking to anyone in authority	**1**	**2**	**3**	**4**	**5**
17. Trembling or shaking in front of others is distressing to me	**1**	**2**	**3**	**4**	**5**

Participant ID: _____ Date: _____

Please circle the number on the scale below that best corresponds to your experience during the first-impression exercise.

1 = Not at all
2 = Somewhat
3 = To a moderate degree
4 = Mostly
5 = Totally

[Circle the score that represents your answer]

1. I was focusing on the other person's appearance or dress.	**1**	**2**	**3**	**4**	**5**
2. I was focusing on the features or conditions of the physical surroundings (e.g., appearance, temperature).	**1**	**2**	**3**	**4**	**5**
3. I was focusing on what I would say or do next.	**1**	**2**	**3**	**4**	**5**
4. I was focusing on the impression I was making on the other person.	**1**	**2**	**3**	**4**	**5**
5. I was focusing on how the other person might be feeling about himself/herself.	**1**	**2**	**3**	**4**	**5**
6. I was focusing on what I thought of the other person.	**1**	**2**	**3**	**4**	**5**
7. I was focusing on my level of anxiety.	**1**	**2**	**3**	**4**	**5**
8. I was focusing on what the other person was saying or doing.	**1**	**2**	**3**	**4**	**5**
9. I was focusing on my internal bodily reactions (for example, heart rate).	**1**	**2**	**3**	**4**	**5**
10. I was focusing on past social failures.	**1**	**2**	**3**	**4**	**5**

Participant ID: _____ Date: _____

Instructions:
In the box below, please write a number which best represents your current level of anxiety. That is, how anxious you feel right now.

When choosing your number use a 0 – 100 scale;
where **0 = no anxiety**, totally relaxed and to **100 = highest anxiety you have ever felt**.
Please enter any number between 0 and 100 (inclusive).

Please enter the number between 0 and 100 that represents your current level of anxiety here:

_____

Participant ID: _____ Date: _____

Instructions:
This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Please choose only one number for each word.

Indicate to what extent you feel this way right now, that is, at the present moment.

1 = Very slightly or not at all
2 = A Little
3 = Moderately
4 = Quite a bit
5 = Extremely

_____ 1. Interested
_____ 2. Distressed
_____ 3. Excited
_____ 4. Upset
_____ 5. Strong
_____ 6. Guilty
_____ 7. Scared
_____ 8. Hostile
_____ 9. Enthusiastic
_____ 10. Proud
_____ 11. Irritable
_____ 12. Alert
_____ 13. Ashamed
_____ 14. Inspired
_____ 15. Nervous
_____ 16. Determined
_____ 17. Attractive
_____ 18. Jittery
_____ 19. Active
_____ 20. Afraid

Participant ID: _____ Date: _____

Over the **last 2 weeks**, how often have you been bothered by the following problems?

1 = Not at all
2 = Several days
3 = More than half of the days
4 = Nearly everyday

[Circle the score that represents your answer]

1. Feeling nervous, anxious, or on edge	**1**	**2**	**3**	**4**
2. Not being able to stop or control worrying	**1**	**2**	**3**	**4**
3. Worrying too much about different things	**1**	**2**	**3**	**4**
4. Trouble relaxing	**1**	**2**	**3**	**4**
5. Being so restless that it is hard to sit still	**1**	**2**	**3**	**4**
6. Becoming easily annoyed or irritable	**1**	**2**	**3**	**4**
7. Feeling afraid as if something awful might happen	**1**	**2**	**3**	**4**

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

☐ Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult

Participant ID: _____ Date: _____

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you've felt this way during the **past week**. Please respond to all items.

1 = Rarely or none of the time
(Less than 1 day)

2 = Some or a little of the time
(1 - 2 days)

3 = Occasionally or a moderate of amount of time
(3 - 4 days)

4 = All of the time
(5 - 7 days)

[Circle the score that represents your answer]

1. I was bothered by things that don't usually bother me	**1**	**2**	**3**	**4**
2. I did not feel like eating; my appetite was poor	**1**	**2**	**3**	**4**
3. I felt that could not shake off the blues even with help from my family	**1**	**2**	**3**	**4**
4. I felt that I was just as good as other people	**1**	**2**	**3**	**4**
5. I had trouble keeping my mind on what I was doing	**1**	**2**	**3**	**4**
6. I felt depressed	**1**	**2**	**3**	**4**
7. I felt that everything I did was an effort	**1**	**2**	**3**	**4**
8. I felt hopeful about the future	**1**	**2**	**3**	**4**
9. I thought my life had been a failure	**1**	**2**	**3**	**4**
10. I felt fearful	**1**	**2**	**3**	**4**
11. My sleep was restless	**1**	**2**	**3**	**4**
12. I was happy	**1**	**2**	**3**	**4**
13. I talked less than usual	**1**	**2**	**3**	**4**
14, I felt lonely	**1**	**2**	**3**	**4**
15. People were unfriendly	**1**	**2**	**3**	**4**
16. I enjoyed life	**1**	**2**	**3**	**4**
17. I had crying spells	**1**	**2**	**3**	**4**
18. I felt sad	**1**	**2**	**3**	**4**
19. I felt people disliked me	**1**	**2**	**3**	**4**
20. I could not "get going"	**1**	**2**	**3**	**4**

Participant ID: _____ Date: _____

Read each statement and decide whether or not it describes you. If you agree with the statement or decide that it does describe you, answer TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE. Answer every item either true or false, even if you are not completely sure of your answer.

[Circle your answer]

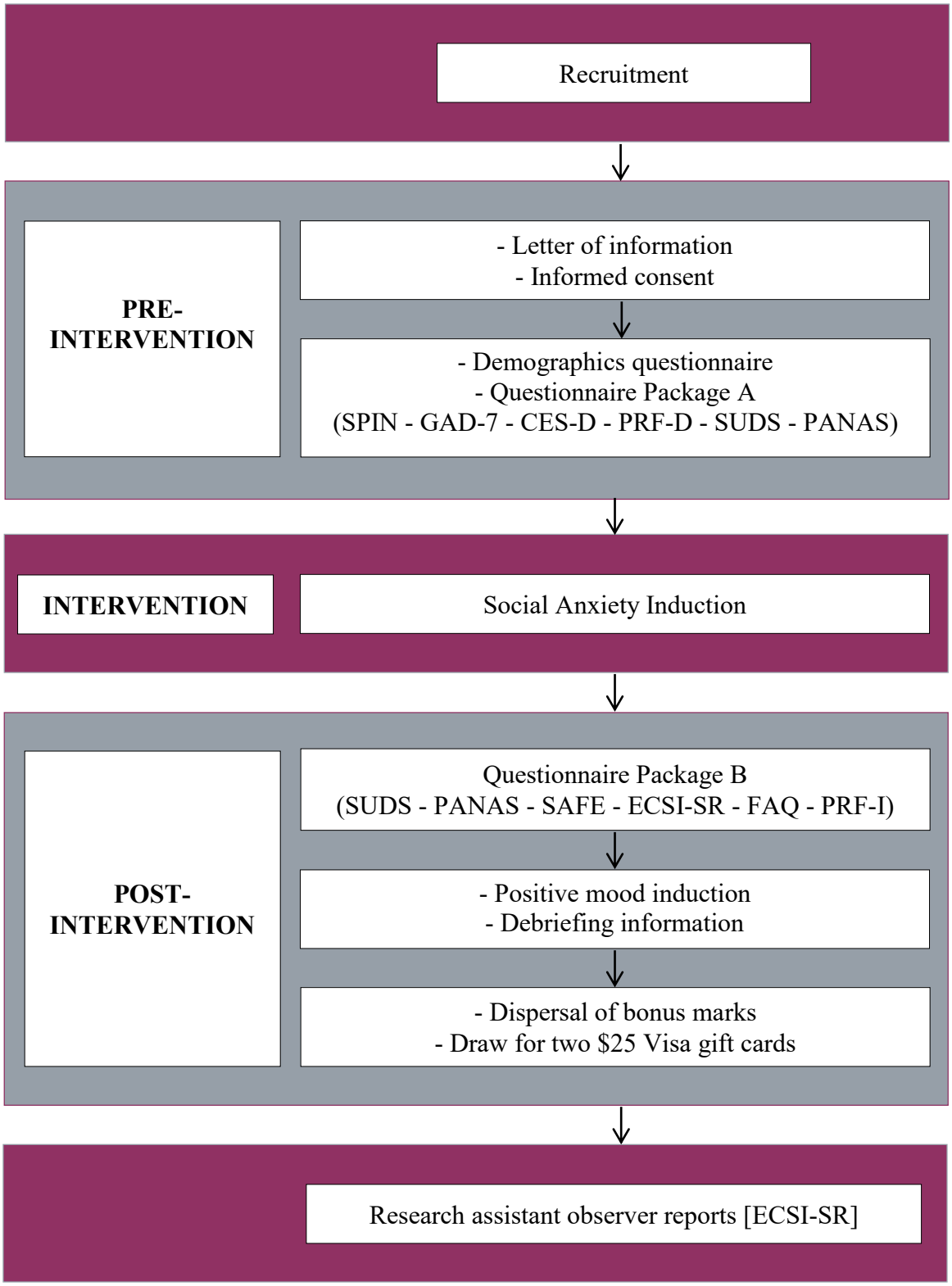
1. I am never able to do things as well as I should	**True**	**False**
2. I believe people tell lies any time it is to their advantage	**True**	**False**
3. I would be willing to do something a little unfair to get something that was important to me	**True**	**False**
4. I did many bad things as a child	**True**	**False**
5. I often question whether life is worthwhile	**True**	**False**
6. My daily life includes many activities I dislike	**True**	**False**
7. Many things make me feel uneasy	**True**	**False**
8. I find it very difficult to concentrate	**True**	**False**
9. I am quite able to make correct decisions on difficult questions	**True**	**False**
10. My life is full of interesting activities	**True**	**False**
11. If someone gave me too much change I would tell them	**True**	**False**
12. I get along with people at parties quite well	**True**	**False**
13. I am glad I grew up the way I did	**True**	**False**
14. I am always prepared to do what is expected of me	**True**	**False**
15. I am one of the lucky people who could talk to my parents about my problems	**True**	**False**
16. I am careful to plan for my distant goals	**True**	**False**

Participant ID: _____ Date: _____

Read each statement and decide whether or not it describes you. If you agree with the statement or decide that it does describe you, answer TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE. Answer every item either true or false, even if you are not completely sure of your answer.

[Circle your answer]

1. I could easily count from one to twenty-five	**True**	**False**
2. I have never talked to anyone by telephone	**True**	**False**
3. I make all my own clothes and shoes	**True**	**False**
4. Things with sugar in them usually taste sweet to me	**True**	**False**
5. I try to get at least some sleep every night	**True**	**False**
6. I have attended school at some time during my life	**True**	**False**
7. I have never had any hair on my head	**True**	**False**
8. I have never ridden in an automobile	**True**	**False**
9. I usually wear something warm when I go outside on a very cold day	**True**	**False**
10. Sometimes I see cars near my home	**True**	**False**
11. I have never bought anything from a store	**True**	**False**
12. I can run a mile in less than 4 minutes	**True**	**False**
13. I have never brushed or cleaned my teeth	**True**	**False**
14. I have travelled away from my home town	**True**	**False**
15. I have never felt sad	**True**	**False**
16. Sometimes I feel thirsty or hungry	**True**	**False**



NOTE: GAD-7 = Generalized Anxiety Disorder-7; CES-D = Center for Epidemiological - Depression Scale; SPIN = Social Phobia Inventory; SUDS: Subjective Units of Distress Scale; PANAS = Positive and Negative Affect Schedule; SAFE = Subtle Avoidance Frequency Examination; ECSI-SR = Ethological Coding System for Interviews-Self-Report; FAQ = Focus of Attention Questionnaire

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Information Letter

Dear Potential Participant,

Thank you for your interest in our research entitled **"**The Social Impression Study". The purpose of this study is to investigate factors influencing the effectiveness of first impression ratings for professional interactions occurring via videoconferencing. You have been invited to participate because you are a student enrolled at Lakehead University (Thunder Bay Campus).

Participants in this study will be invited to attend a laboratory session where they will complete a series of questionnaires that ask questions related to their social, emotional, and health history. Participants will also engage in an activity where they will have three minutes to make a good first impression on two individuals viewing them through a videoconference. This interaction will be videotaped to permit subsequent analysis of the factors that influenced the first impression rating. Following the activity, we will ask participants to complete some questionnaires that inquire about their experience during the first impression activity. Participants maintain the right to decline to answer any question throughout the duration of the session. It is anticipated that this session will take approximately an hour to complete.

For any inquiries pertaining to this study, please contact Dani Adduono (Department of Psychology, Lakehead University, **dradduon@lakeheadu.ca**).

This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of this research and would like to speak to someone outside of the research team contact the Sue Wright at the Research Ethics Board at 1-807-343-8283 or research@lakeheadu.ca.

There are no known physical or psychological risks associated with this research. However, we do recognize that participation in any psychological study has the potential to raise some personal issues. Some participants may experience mild psychological discomfort answering personal questions or engaging in the videoconference activity. If this occurs, we ask that you please contact the Student Health and Counselling Centre at Lakehead University (Prettie Residence) at **1-807-343-8361** or the Thunder Bay Crisis Response Service at **1-807-346-8282** where a counsellor will be immediately available to speak with you.

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Your anonymity and confidentiality will be maintained throughout this study. All data will be coded with a number and no identifying information will be associated with questionnaire responses or research results. For publication purposes, all data and forms obtained will be securely stored at Lakehead University for five years. The only individuals who will have access to the data are persons directly involved in this research and they will be obligated to maintain confidentiality. The videotape obtained during the study will only be used by the persons directly involved in the research and only for the purposes of the study. The videotape will under no circumstances be distributed elsewhere or be viewed by any person not directly involved in the research. The videotape will be destroyed once the data has been extracted.

Your participation in this research is completely voluntary and should you choose to withdraw your participation, you may do so without consequence or the need for justification. There is no penalty for non-participation. You may withdraw your participation at any point during this study; however, you will not be able to withdraw your data after it has been submitted due to anonymity and confidentiality. The data obtained in this research will be used in research publications and conferences/presentations, as well as for teaching purposes. Your identity will remain confidential throughout these processes as well.

As a token of our gratitude for participating in this research, you may elect to be entered into a draw to win one of two $25 (CAD) Visa gift cards and you may elect to receive one bonus mark towards an eligible Lakehead University course**.** If you elect to be entered into the draw to win the Visa gift card, you will be asked for your email address in order to be informed should you win. If you elect to receive the bonus mark, you must provide the student researcher with your name, student number, instructor's name, and course code. Please note, your instructor must allow the acquisition of bonus marks to receive one from this study. A summary of the research findings may also be available to you by emailing the student researcher, Dani Adduono (**dradduon@lakeheadu.ca**). Please note, however, that it might take up to 6 months after the study is complete for the findings to become available.

Thank you for your interest and participation. It is greatly appreciated and will make a difference!

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Informed Consent Document

- I voluntarily agree to participate in the research.
- I have read and I understand the information provided in the letter of information for the study called “The Social Impression Study". I was given the opportunity to ask questions about the study and any answers given were to my satisfaction.
- I understand that there are no known physical or psychological risks associated with participation in this research. However, should any emotional distress present itself, I have been given the contact information for appropriate professionals.
- I understand that I may choose not to answer any question and that I can withdraw from the study at any time. However, I understand that any information I provide before I withdraw from the study will not be withdrawn due anonymity and confidentiality.
- I understand that the data I provide will be securely stored at Lakehead University for five years and that I can email the researcher to receive a summary of study findings once they are available.
- I understand that my identity will remain anonymous in any publication or public presentation resulting from this research.
- I understand that I will be videotaped during the study so further analysis of my participation can be completed. I understand that the videotape will remain completely secure and only the research team members involved in the study will have access to it. I understand that the videotape will be destroyed after the data has been obtained from it.
- I understand that the data collected during the study are for research purposes only and that I will not receive individual feedback subsequent to my participation.

I understand that by completing and submitting the questionnaires I am consenting to participate in this research.

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Debriefing Letter

Thank you for participating in this study. Please be assured that the data you provided during the study will be coded and therefore will not be linked to any personal contact information. This ensures anonymity and confidentiality for you as a participant in the research. If you are interested in a summary of the study results subsequent to the cessation of the study, please email the student researcher Dani Adduono at **dradduon@lakeheadu.ca** and an electronic copy will be made available to you. Please note that the summary of results may not be available for up to 6 months after the completion of the study. If you have any questions pertaining to the study, please do not hesitate to contact the student researcher, Dani Adduono (**dradduon@lakeheadu.ca**). Please note that, as part of this study, we will be sending further details about this investigation to participants via email once study recruitment has ended. If you agree to receive this information, you will be asked to provide your email information so we can make this information available to you.

If your participation has raised any issues about mental health concerns that you would like to discuss, you may contact Lakehead University Student Health and Counselling at 807-343-8361. You may also contact the Ontario Mental Health Helpline at 1-866-531-2600 or the Crisis Response Program through the Canadian Mental Health Association at 807-346-8282.

If you are interested in learning more about the impact of first impressions and strategies to improve them, please visit the following websites:

- American Psychological Association “First Impressions Count” http://www.apa.org/gradsych/2012/11/first-impressions.aspx
- The Association for Psychological Science “Studying First Impressions: What to Consider?” https://www.psychologicalscience.org/observer/studying-first-impressions-what-to-consider.
- Psychology Today “5 Ways to Make a Great First Impression” https://www.psychologytoday.com/intl/blog/fulfillment-any-age/201405/5-ways-make-great-first-impression

Thank you for your interest and participation. It was greatly appreciated and will make a difference!

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Debriefing Letter

Thank you for participating in this study. Please be assured that the data you provided during the study will be coded and therefore will not be linked to any personal contact information. This ensures anonymity and confidentiality for you as a participant in the research. If you are interested in a summary of the study results subsequent to the cessation of the study, please email the student researcher Dani Adduono at **dradduon@lakeheadu.ca** and an electronic copy will be made available to you. Please note that the summary of results may not be available for up to 6 months after the completion of the study. If you have any questions pertaining to the study, please do not hesitate to contact the student researcher, Dani Adduono (**dradduon@lakeheadu.ca**). Please note that, as part of this study, we will be sending further details about this investigation to participants via email once study recruitment has ended. If you agree to receive this information, you will be asked to provide your email information so we can make this information available to you.

If your participation has raised any issues about mental health concerns that you would like to discuss, you may contact Lakehead University Student Health and Counselling at 807-343-8361. You may also contact the Ontario Mental Health Helpline at 1-866-531-2600 or the Crisis Response Program through the Canadian Mental Health Association at 807-346-8282.

If you are interested in learning more about the impact of first impressions and strategies to improve them, please visit the following websites:

- American Psychological Association “First Impressions Count”
  http://www.apa.org/gradsych/2012/11/first-impressions.aspx
- The Association for Psychological Science “Studying First Impressions: What to Consider?”
  https://www.psychologicalscience.org/observer/studying-first-impressions-what-to-consider.
- Psychology Today “5 Ways to Make a Great First Impression”
  https://www.psychologytoday.com/intl/blog/fulfillment-any-age/201405/5-ways-make-great-first-impression

To receive the one-time follow up regarding this study, please provide your email address below:

_____

☐ Opt out of the one-time follow up regarding this study

Thank you for your interest and participation. It was greatly appreciated and will make a difference!

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Debriefing Letter

You are receiving this letter because you previously participated in a study entitled "The Social Impression Study". The intent of this letter is to provide you with additional details regarding the purpose of this investigation. The main objective of this study was to assess the observer-respondent disparity of behaviours commonly seen a context that can elicit social anxiety (e.g., when you are attempting to create a positive first impression). For simplicity and standardization, the individuals viewed during the videoconference activity were pre-recorded confederates. We kindly ask that you keep this information confidential and that you do not share this letter with anyone else. We hope that the findings of this study will help further the empirical understanding of the common experience of anxiety during social interactions. Your participation also has the potential to help us reform the way we address social anxiety in research and in treatment.

Please be assured that the data you provided during the study has been coded and therefore is not linked to any personal contact information. This ensures anonymity and confidentiality for you as a participant in the research. If you are interested in a summary of the results subsequent to the cessation of the study, please email the student researcher Dani Adduono at **dradduon@lakeheadu.ca** and an electronic copy will be made available to you. Please note that the summary of results may not be available for up to 6 months after the completion of the study. If you have any questions pertaining to the study, please do not hesitate to contact the student researcher, Dani Adduono (**dradduon@lakeheadu.ca**).

If your participation has raised any issues about mental health concerns that you would like to discuss, you may contact Lakehead University Student Health and Counselling at 807-343-8361. You may also contact the Ontario Mental Health Helpline at 1-866-531-2600 or the Crisis Response Program through the Canadian Mental Health Association at 807-346-8282.

If you are interested in learning more about anxiety, please visit the following websites:

- Anxiety Disorder Association of Canada "Social Anxiety Disorder"
  http://anxietycanada.ca/english/SAD.php
- Brain and Behavior Research Foundation "Anxiety"
  https://bbrfoundation.org/anxiety
- Center for Addiction and Mental Health "Social Phobia"
  http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/Social_Phobia/Pages/Social-Phobia.aspx

Thank you for your interest and participation. It was greatly appreciated and will make a difference!

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Information Form to Receive Applicable Bonus Credits

Your Name: _____

Student Number: _____

Professor's Name: _____

Course Code: _____

Please note, personal information will only be used to provide applicable bonus credits

Information Form to Enter the Draw to Win One of Two $25 Visa Gift Cards

Your Name: _____

Email Address: _____

Phone Number: _____

Please note, personal information will only be used to contact you in the event you win one of the gift cards

EVER WONDERED ABOUT FIRST IMPRESSIONS?

COME PARTICIPATE IN OUR RESEARCH!

LOOKING FOR PARTICIPANTS!

RECIEVE 1 BONUS CREDIT FOR ELIGIBLE PSYCHOLOGY COURSES

1 OF 2 $25 VISA GIFT-CARDS

INFORMATION

Researchers at Lakehead University are recruiting for a study assessing the IMPORTANCE OF PROFESSIONAL FIRST IMPRESSIONS

PARTICIPATE

If interested, please register through Sona-Systems or email Dani Adduono at

DRADDUON@LAKEHEADU.CA

ELIGIBILITY

You must be an UNDERGRADUATE STUDENT at Lakehead University

TASKS

Complete a battery of questionnaires and provide your best professional first impression. Participation is not expected to last longer than 60 MINUTES

DANI ADDUONO, CARLEY J. POPE &
DR. DWIGHT MAZMANIAN.
HEALTH, HORMONES AND BEHAVIOUR
LAB. DEPARTMENT OF PSYCHOLOGY.
LAKEHEAD UNIVERISTY

Lakehead UNIVERSITY

EXCEPTIONAL. UNCONVENTIONAL.

The Social Impression Study
Dani: dradduon@lakeheadu.ca

The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca
The Social Impression Study
Dani: dradduon@lakeheadu.ca

EVER WONDERED ABOUT FIRST IMPRESSIONS?

COME PARTICIPATE IN OUR RESEARCH!

LOOKING FOR PARTICIPANTS!

RECIEVE 1 BONUS CREDIT FOR ELIGIBLE PSYCHOLOGY COURSES

1 OF 2 $25 VISA GIFT-CARDS

INFORMATION

Researchers at Lakehead University are recruiting for a study assessing the IMPORTANCE OF PROFESSIONAL FIRST IMPRESSIONS

PARTICIPATE

If interested, please register through Sona-Systems or email Dani Adduono at

DRADDUON@LAKEHEADU.CA

DANI ADDUONO, CARLEY J. POPE &
DR. DWIGHT MAZMANIAN.
HEALTH, HORMONES AND BEHAVIOUR
LAB. DEPARTMENT OF PSYCHOLOGY.
LAKEHEAD UNIVERISTY

ELIGIBILITY

You must be an UNDERGRADUATE STUDENT at Lakehead University

TASKS

Complete a battery of questionnaires and provide your best professional first impression. Participation is not expected to last longer than 60 MINUTES

Lakehead UNIVERSITY

EXCEPTIONAL. UNCONVENTIONAL.

Script for Classroom/Email Broadcasts

Hello Everyone. My name is Dani Adduono, an MSc student in the Psychological Science Program here at Lakehead University. I am here today to let you know about a study currently being conducted in the Health, Hormones, and Behaviour Laboratory. The study is called the “The Social Impression Study” and is open to all students currently enrolled at Lakehead University. Participation will involve coming to our lab to complete some questionnaires and provide your best professional first impression to other individuals on a videoconferencing medium. Your responses are completely anonymous and the session is not expected to last longer than one hour. As a token of appreciation for participating, at the end of the session you will have the option to receive a bonus mark for students who are registered in applicable courses and you will have the option to be entered into a draw for a chance to win one of two $25 Visa gift cards. If you are interested in participating, please sign up on SONA systems, or email me directly at dradduon@lakeheadu.ca

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

VOLUNTEER PERFORMERS WANTED

Hello, my name is Dani Adduono (**dradduon@lakeheadu.ca**) and I am pursuing my Master of Psychological Science Degree at Lakehead University. I am currently working on my master's thesis with Carley J. Pope, M.A. (**cpope@lakeheadu.ca**) as a co-investigator, under the supervision of Dr. Dwight Mazmanian, C. Psych. (**dmazmani@lakeheadu.ca**). As part of our research, we require a videotape of two individuals and therefore need assistance from confederates (i.e., performers).

For the videotaped performance, we need two volunteers, one male and one female, who are between the ages of 19 and 24 (approximately). The performers must not attend Lakehead University and should not be affiliated with students registered in the undergraduate Psychology Program at Lakehead University. Confederates chosen will be videotaped for approximately 15 minutes. During this 15-minute interval, you will be asked to sit silently in front of the camera and look mildly engaged. We also ask that the volunteers be dressed in self-supplied business casual attire. The entire process should only take approximately an hour of your time. Performers will be selected based on suitability for the role but also on a first come basis.

The videotape will only be used for the purposes of this research. We anticipate approximately 250 students to participate in this research. Only individuals directly involved in the study will have access to the resulting videotape and under no circumstances will the videotape be distributed. However, photographs extracted from the videotape may be used for the purposes of publication or presentation. The videotape will be destroyed once the study has concluded.

This is a volunteer experience. While you will not be compensated for your participation, you may find that this experience provides you with the opportunity to add to your portfolio or add to your volunteer work. Please note for anonymity and confidentiality reasons, you will not be given a copy of the videotape. If you have any questions or concerns, please do not hesitate to contact me at **dradduon@lakeheadu.ca**. I would be more than happy to answer any question you may have. Thank you for considering taking part in this research!

If you are interested, please email me today at dradduon@lakeheadu.ca

Warm regards,

Dani Adduono, HBSc.

Student Investigator
Health, Hormones, and Behaviour Laboratory
Psychology Department
Lakehead University
dradduon@lakeheadu.ca

Carley J. Pope, M.A.

Student Investigator
Health, Hormones, and Behaviour Laboratory
Psychology Department
Lakehead University
cpope@lakeheadu.ca

Dwight Mazmanian, Ph.D., C. Psych.

Principal Investigator
Health, Hormones, and Behaviour Laboratory
Psychology Department
Lakehead University
dmazmani@lakeheadu.ca

Department of Psychology
t: (807) 343-8527
dwight.mazmanian@lakeheadu.ca

Project Title: The Social Impression Study

Principal Investigator: Dwight Mazmanian, Ph.D., C. Psych., Lakehead University, **dmazmani@lakeheadu.ca**
Tel: (807) 343-8257

M.Sc. Student Investigator: Dani Adduono, HBSc., Lakehead University, **dradduon@lakeheadu.ca**

Ph.D. Student Investigator: Carley Pope, M.A., Lakehead University, **cpope@lakeheadu.ca**

Release Form

I, _____, am volunteering to be videotaped to assist with a research
(Your Name: Please Print)
study being conducted by Dani Adduono, HBSc., (student researcher), Carley J. Pope, M.A., (student researcher), and Dr. Dwight Mazmanian, C. Psych. (supervisor). I understand that there is no payment for my participation.

I understand that the videotape obtained will only be used for the purposes of this study and will only be viewed by individuals directly involved in the research (including research personnel and students participating in the study). I understand that I will not receive a copy of the videotape and that under no circumstances will this videotape be distributed to the public. I understand that the videotape will be destroyed only once the study has concluded and that I am not able to withdraw it from the study as this will compromise the investigation.

I understand that photo excerpts of the videotape may be taken and used for the purposes of publication and presentations of the results.

_____ _____
Confederates Name (Please Print) Date

_____ _____
Confederate Signature Researcher Signature