

INFORMATION PROCESSING IN SOCIAL PHOBIA:  
THE EFFECT OF SOCIAL APPRAISAL ON THE ANXIETY PROGRAM

by

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## Abstract

This study examined several aspects of the anxiety program described in the Clark and Wells' (1995; Clark, 2001) cognitive model of social phobia, and provided information about the relationship between some of these variables. This study also examined the effect of social appraisals on cognition, affect, and self-protection. Positive and negative interpersonal appraisals were manipulated in 42 patients with social phobia and 42 community control participants. Participants then engaged in a social interaction with a confederate based on the reciprocity self-disclosure paradigm. Participants completed measures of cognitive appraisal, focus of attention, recall, affect, and self-disclosure. Personnel completed similar measures. Results revealed that, consistent with the cognitive model, individuals with social phobia displayed more self-focused attention, more negative affect, and more self-protective behaviours, i.e. were less self-disclosive, than non-phobic control participants. There were no differences on the recall measure. The results suggested that it was possible to manipulate social appraisals. Interestingly, the largest discrepancy between participants with social phobia and controls occurred for self-disclosure in the positive social appraisal condition. The results also provided some clarification about the temporal sequence among the components of the anxiety program, and the role of self-focused attention in social phobia.

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## Introduction

### *Social Phobia*

Social phobia is a prevalent and incapacitating anxiety disorder that can cause significant social and occupational impairment (e.g. Heimberg, 1989). According to the DSM-IV, the essential features of social phobia are (1) a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others; (2) marked anxiety upon exposure to the feared social situation; (3) recognition that the fear is excessive or unreasonable; (4) feared situations are avoided or endured with intense anxiety or distress; and (5) significant impairment of occupational functioning, social activities or relationships, and/or normal routine due to avoidance, anxious anticipation or distress (APA, 1994, pp. 416-417).

Typically, people with social phobia are hypersensitive to criticism, negative evaluation or perceived rejection. They are nonassertive, suffer from low self-esteem, have small social networks, and many do not marry (APA, 1994). Although social phobia was identified as a distinct condition by Marks and Gelder in 1966, relatively few empirical studies were conducted until over a decade later (Heimberg, 1989).

Early models of social phobia emphasized social skill deficits and conditioned anxiety. However, more recent models have incorporated cognitive elements (Heimberg & Juster, 1995). In fact, some writers have asserted that cognitive factors are more central to social phobia than to other anxiety disorders (e.g. Butler, 1985). This introduction will begin by outlining Clark and Wells' (1995; see also

Clark, 2001) cognitive model of social phobia, which serves as the conceptual framework for this research.

### *Cognitive Model*

Clark and Wells (1995; Clark, 2001) suggest that as a result of past experiences, individuals with social phobia develop negative beliefs about themselves and their social worlds that lead them to expect negative social outcomes. Such beliefs and expectations activate what these writers call an "anxiety program," a constellation of cognitive, somatic, and behavioural changes designed to protect the person from negative outcomes. The main components of the anxiety program are anticipatory processing, self-focused attention, and the adoption of safety behaviours. According to the theory, these processes maintain or exacerbate social anxiety and sometimes even lead to the very outcomes that the person fears. The anxiety program also prevents the disconfirmation of the original negative beliefs, thereby perpetuating the disorder. Each of the components of the anxiety program will be discussed in detail.

### *Anticipatory Processing*

Anticipatory processing may be the component that is responsible for initiating the anxiety program, but it is also one of the least studied components of the model. Clark and Wells (1995) describe anticipatory processing as a process in which negative assumptions and beliefs about the self, and memories of past failures are brought to mind. During this process people may also imagine themselves as behaving poorly in the situation. Anticipatory processing is believed to result in negative predictions about the event. At times, the anxiety produced by

the anticipatory process will lead the person to avoid the event completely, other times the person will enter the situation, but in a self-focused mode. Research suggests that anticipatory negative images may be developed through early unpleasant experiences (Hackmann, Clark, & McManus, 2000).

### *Focus of Attention*

The component of the cognitive model that has received the most research scrutiny is self-focused attention. According to Clark and Wells (1995), when people with social phobia perceive social danger (e.g., impending scrutiny, rejection, or criticism), they focus their attention on detailed monitoring of themselves.

Unfortunately, focusing on the self has the effect of increasing the salience of interoceptive cues (i.e., anxiety-related internal sensations) and negative self-related thoughts, which then figure heavily in the person's judgments about his or her performance. The preoccupation with interoceptive cues leads to a reduction in attention to others' responses. Given that people rarely provide non-ambiguous cues about their reactions to those with whom they interact, individuals with social phobia may miss the subtle cues that demonstrate acceptance and liking. As a result, they base their judgments about interactions on their preconceived ideas and emotional reactions, rather than objective information about the interaction.

Consistent with the Clark and Wells (1995) theory, individuals with social anxiety generally report greater self-focused attention during interactions than do non-anxious people (e.g. Hope, Rapee, Heimberg & Dombeck, 1990; Mellings & Alden, 2000). Research has also demonstrated that self-focused attention increases both anticipated and observed anxiety in people with social phobia

(Woody, 1996; Woody & Rodriguez, 2000). Several researchers found evidence that people with social anxiety base their judgments about others' responses more on their own arousal than do non-anxious controls (Arntz, Rauner & van den Hout, 1995; McEwan & Devins, 1983; Wells & Papageorgiou, 2001). Furthermore, Wells and Papageorgiou (1998) demonstrated that exposure to social situations combined with a shift to an external focus of attention reduced anxiety and beliefs in feared catastrophes more than exposure alone.

Although self-focused attention does not necessarily decrease social performance (Woody & Rodriguez, 2000), some writers believe that increased self-focus contributes to judgment biases and recall deficits (e.g. Clark & Wells, 1995; Hope, Heimberg, & Klein, 1990; Mellings & Alden, 2000). In order to appreciate the complexity of these cognitive processes, it is important to be clear about the difference between attention, judgment, and recall. Selective attention and biased judgment have been linked to anxiety disorders. In the cognitive literature, the term attentional bias refers to selective attention to or processing of specific types of information. Self-focused attention is a form of selective attention. Judgment refers to appraisals or assessments of events. Judgmental biases are said to occur when an individual's appraisal differs significantly from those of objective observers. Recall refers to the recollection of information about previously experienced events. Both recall deficits and recall biases have been noted in the literature. Recall deficits involve the lack of information as a result of selective attention away from particular pieces of information. Recall biases allude to having taken in or encoded

the information, but selectively retrieving this information. I will now discuss each of these processes in turn.

*Selective attention.* Attentional biases occur when individuals selectively attend to certain stimuli, which are believed to draw on attentional resources and interfere with processing other types of information (Williams, Mathews, & MacLeod, 1996). Biased attention is often studied using either the dot-probe paradigm or the emotional Stroop task. The dot-probe paradigm is a method that measures the distribution of visual attention by considering dot-detection latencies. The Stroop task is a method that examines the interference effects of the thematic content of words on a colour-naming task.

Dot-probe studies have been conducted on patients with social phobia, panic disorder, generalized anxiety disorder, specific phobias, and depression, as well as on non-clinical samples of participants with social anxiety, trait anxiety, or induced dysphoria (e.g. Asmundson & Stein, 1994; Bradley, Mogg, Falla, & Hamilton, 1998; Bradley, Mogg, & Lee, 1997; Bradley, Mogg, White, Groom, de Bono, 1999; Horenstein, & Segui, 1997; Mansell, Clark, Ehlers, & Chen, 1999; Mogg, & Bradley, 1999; Mogg, Bradley, & Williams, 1995; Wenzel, & Holt, 1999). These studies have used positive, negative/threatening and neutral words, or facial stimuli to investigate attentional focus. This research reveals that results differ depending on the particular disorder, the type of stimulus, and the means of presentation of the stimulus (e.g. supraliminal or subliminal). One study found that, when compared to controls, GSP patients demonstrated an attentional bias towards threatening information, but that this bias only occurred when threat cues were actively

perceived (Asmundson & Stein, 1994). Another study found no attentional bias toward threat information for patients with social phobia, but they did find an attentional bias toward physical threat cues for patients with panic disorder (Horenstein & Segui, 1997). One possible reason why the results of this study differed from the first study is that the words focused more on physical and general threat than on social threat cues such as those used in the first study. This suggests that in order to find an attentional bias, the chosen words must represent the core of the anxiety disorder (Heinrichs & Hofmann, 2001). On the other hand, a study found that people with specific phobias did not demonstrate an attentional bias toward phobia-related stimuli (Wenzel, & Holt, 1999). Other studies that used word stimuli found that people with either induced or natural dysphoria demonstrated greater vigilance for negative or depression-related words compared to anxiety-related or neutral words (Bradley, et al., 1997), and that both anxious and depressed participants demonstrated an attentional bias to supraliminally presented negative words, but only anxious participants demonstrated this bias when words were presented subliminally (Mogg, et al., 1995). The latter study provided evidence for a bias in preconscious processes in people with anxiety.

Dot-probe studies that used facial stimuli found that high socially anxious participants demonstrated an attentional bias away from emotional (negative and positive) faces compared to non-anxious controls, but this only occurred under conditions of social threat (Mansell, et al., 1999). This suggests that the feared situation must be imminent in order for attentional biases to occur. On the other hand, participants with generalized anxiety disorder demonstrated greater vigilance

for threatening and positive versus neutral faces when compared to normal controls (Bradley, et al., 1999). In non-clinical samples of participants with high and low trait anxiety, participants with high trait anxiety, compared to participants with low trait anxiety, demonstrated an attentional bias toward threatening faces, but not emotional faces in general (Bradley, Mogg, Falla, & Hamilton, 1998), and this also occurred when the faces were presented outside of awareness (Mogg, & Bradley, 1999).

The Stroop task has been used to investigate attentional biases in individuals with social phobia, shyness, generalized anxiety disorder, panic disorder, simple phobias, obsessive-compulsive disorder, and post-traumatic stress disorder (e.g. Arnold, & Cheek, 1986; Ehlers, et al., 1988; Hope, Rapee, Heimberg, & Dombeck, 1990; Thorpe & Salkovskis, 1997; Williams, et al., 1996). This research reveals that anxiety disordered patients selectively attend to information related to their specific fears (Daggleish & Watts, 1990; Ehlers, et al., 1988; Hope, Rapee, Heimberg, & Dombeck, 1990; Mathews & MacLeod, 1985; Mathews & MacLeod, 1994). Several studies found empirical evidence for attentional biases toward social threat information in social phobic, socially anxious, and shy populations (e.g., Arnold, & Cheek, 1986; Hope, Rapee, Heimberg, & Dombeck, 1990; Lundh, & Ost, 1996a). One study found that when patients with social phobia were highly anxious, they were able to inhibit the interference shown on the Stroop task, and this was particularly true for socially threatening words (Amir, McNally, Riemann, Burns, Lorenz, & Mullen, 1996). The ability to use conscious strategies to override the effects of salient stimuli has also been found in people with high trait-anxiety (Mogg,

Kentish, & Bradley, 1993; Williams, et al., 1996). Since people with social phobia selectively attend to social threat, but also suppress the processing of this information when they are highly anxious, the information may not be sufficiently encoded, and this may have implications for judgment and recall (Heinrichs & Hofmann, 2001).

*Judgmental biases.* As noted earlier, judgmental biases are typically measured by comparing subjects' judgments with objective referents, for example the judgments of other observers. Empirical studies reveal that people with social phobia tend to misinterpret social situations, specifically, they make more negative inferences from social stimuli (Amir, Foa, & Coles, 1998a; Amir, Foa, & Coles, 1998b; Foa, Franklin, Perry, Herbert, 1996; Hirsch & Mathews, 1997; Stopa & Clark, 2000; Wallace & Alden, 1997), and tend to overestimate their own negative behaviour (e.g. Mellings & Alden, 2000; Rapee & Lim, 1992; Stopa & Clark, 1993). For example, Alden and Wallace (1995) found that after having a conversation with a confederate who deliberately displayed positive or negative behaviour, participants with social phobia were less accurate in their appraisals of their own behaviour than were control participants. Furthermore, faced with friendly behaviour from the confederate, participants with social phobia believed that the confederate liked them less than did control participants. This suggests that individuals with social phobia have a negative bias about their own behaviour regardless of their partner's reactions or their own performance (Alden & Wallace, 1995).

*Recall deficits.* Selective attention has also been postulated to lead to recall deficits for specific pieces of information (e.g. Hope, Heimberg, & Klein, 1990;



Mellings & Alden, 2000). If people with social phobia focus on themselves to the exclusion of other people, then they may be less likely to recall information about others. Two studies found this very result, i.e., that self-focused attention was related to recall deficits. Hope, Heimberg, and Klein (1990) found that participants with social anxiety demonstrated a recall deficit for partner and topic-related information compared to controls. Furthermore, they found that public self-awareness was correlated with memory omissions for external social cues. A study conducted in our lab demonstrated that students high in social anxiety engaged in self-focused attention, which in turn predicted recall deficits for partner-related information in recollections of a social interaction (Mellings & Alden, 2000). These results suggested that the recall deficits found in people with social phobia may have been a result of selective encoding due to selective attention.

Other research also supports the existence of a recall deficit for external information in social anxiety, although these studies did not assess self-focused attention. Daly, Vangelisti, and Lawrence (1989) found that people with social anxiety showed poorer recall for environmental characteristics and greater recall for negative self-focused thoughts than did controls in a public speaking situation. Hope, Sigler, Penn, and Meier (1998) found that after a heterosocial conversation, women with social anxiety displayed poorer recall than non-anxious women, but that social anxiety and recall were not related in men.

*Recall bias.* Although anxious individuals have been shown to have recall deficits, it is less clear if they have recall biases. The research literature consistently supports an association between depression and selective recall, but findings

regarding anxiety are less convincing (e.g., Mathews & MacLeod, 1994). Evidence of biased recall has been found in studies examining clinically depressed subjects, sub-clinically depressed subjects, and subjects with induced dysphoric mood (Dalglish & Watts, 1990). The two main phenomena that have been studied are "state-dependent learning" and "mood congruency" (Dalglish & Watts, 1990). The former phenomenon is usually studied by having subjects recall word lists after mood induction procedures or when naturally different moods occur, or by using an interference paradigm (Dalglish & Watts, 1990). Results of these studies typically do not support the idea of state-dependent learning (Dalglish & Watts, 1990). Mood congruency effects are generally studied by providing neutral words, asking subjects to retrieve personal memories relating to the words, and measuring how fast they think of negative memories when in more or less depressed moods (Clark & Teasdale, 1982; Dalglish & Watts, 1990). Results for both clinically depressed subjects and induced mood subjects typically show biased memory for events consistent with the current mood of the subject (Clark, & Teasdale, 1982; Dalglish & Watts, 1990).

Some researchers argue that the negative recall biases found in depression also occur in anxiety (McNally, Foa, & Donnell, 1989; Hope, Heimberg, & Klein, 1990; Cloitre & Liebowitz, 1991). Other researchers believe that selective recall is specific to depression and that the phenomenon found in anxiety reflects an attentional bias or response bias instead of selective recall (Mogg, Mathews, & Weinman, 1987; Dalglish & Watts, 1990; Mathews & MacLeod, 1994). Clark and Wells (1995) allude to the notion that people with social phobia display selective

retrieval of social threat information, but this idea is not well-developed in their model.

Six studies investigated selective recall in non-clinical populations of people with social anxiety. Four of these studies found that participants high in social anxiety recalled more negative words from word lists than did those low in social anxiety when a self-referent encoding task was used (Breck & Smith, 1983; Claeys, 1989; Mansell & Clark, 1999; Smith, Ingram, & Brehm, 1983). This enhanced recall tended to occur in public self-referent conditions and when participants were expecting to be socially evaluated (Mansell & Clark, 1999; Smith et al, 1983). Only the study by Mansell and Clark (1999) controlled for depression, so the results of the other studies may be confounded by depressed affect. Even sub-clinical levels of depression have been found to lead to memory biases (Sanz, 1996). In contrast to the previous results, two studies did not find increased recall for socially threatening words in participants with social anxiety (Foa, McNally, & Murdock, 1989; Sanz, 1996). In sum, the research on selective recall in non-clinical samples is inconclusive.

Six studies investigated selective recall in patients with social phobia. Three studies found some evidence for recall biases. Lundh and Ost (1996b) found that patients with social phobia displayed selective recall of pictures of negative versus positive faces. Similarly, Foa, Gilboa-Schechtman, Amir, and Freshman (2000) found that patients with social phobia displayed enhanced recognition of faces with negative versus non-negative expressions. Finally, Lundh & Ost (1997) found an implicit memory bias for emotional information for participants with discrete social

phobia, but not for patients with generalized social phobia or controls on a word-stem completion task. None of the participants demonstrated an explicit memory bias. Again, although the study by Foa and her colleagues (2000) excluded participants with a diagnosis of major depression, sub-clinical levels of depression were not controlled in any of the other studies.

In contrast to these studies, four studies found no evidence for recall biases in this population. Rapee, McCallum, Melville, Ravenscroft, and Rodney (1994) found no differences between people with social phobia and controls in implicit and explicit recall on a variety of semantic and memory retrieval tasks. Becker, Roth, Andrich, and Margraf (1999) found that patients with social phobia did not display an explicit memory bias for threatening words. Cloitre, Cancienne, Heimberg, Holt, and Liebowitz (1995) found no evidence for recall biases on perceptual memory and semantic memory tasks. Perez-Lopez and Woody (2001) also found no evidence for a recall bias toward threatening facial expressions.

Overall, given the limited amount of research available, evidence for selective recall in people with social phobia is inconsistent. Although it is unclear what leads to the inconsistency in these studies, one set of researchers suggested that, at least for studies involving facial stimuli, the level of anxiety and task complexity may interact to contribute to the mixed results (Perez-Lopez, & Woody, 2001). Rapee and Heimberg (1997) suggested that attentional narrowing occurs when people with social phobia are anxious in which they direct their attention to themselves and external threat. They hypothesized that the resulting cognitive load may lead these individuals to perform more poorly at lower levels of task complexity than non-

anxious people. In other words, greater anxiety may help memory for threatening information on an easy task, i.e. only a few faces, but it may impair their performance when the task is demanding, i.e. many faces briefly presented (Perez-Lopez, & Woody, 2001).

Researchers have investigated recall biases in people with other anxiety disorders. Findings appear to depend on the nature of the specific disorder and the type of memory task. I will briefly outline these studies.

Researchers have presented words whose content conveys either positive, general threat, disorder-specific threat, or no threat on audiotape or computer screen and asked patients with generalized anxiety disorder or control subjects to decide if the words described themselves or other people (Mogg, et al., 1987; Mogg & Mathews, 1990) or to imagine a scene including themselves and the word (Mathews, Mogg, May, & Eysenck, 1989; Becker, et al., 1999). These studies produced mixed results. Some studies reported that there was a slight trend for GAD subjects to recall significantly more threatening words (Mathews, et al., 1989). Other studies rejected the idea of selective memory for negative self-referent or threatening information (Bradley, Mogg, & Williams, 1995; Becker, et al., 1999; Mogg, et al., 1987) and reported that anxious subjects actually showed poorer memory for threat information (Mogg, et al., 1987). Still other studies reported greater recall of both self-referent information and anxiety words separately, but not in conjunction, suggesting the possibility of a response bias instead of selective memory (Mogg & Mathews, 1990). One study rejected the idea of explicit recall biases in this population, but found evidence for implicit recall biases (MacLeod &

McLaughlin, 1995). Overall, these studies provide only limited support for the existence of selective memory in generalized anxiety disorder.

For people who have panic disorder or agoraphobia, researchers have presented subjects with positive, threatening, and neutral words and have had them perform lexical decision tasks followed by recall and recognition tests. These studies revealed an explicit recall bias for threatening words in general in panic disordered subjects (Becker, Rinck, & Margraf, 1994; Becker, et al., 1999; Cloitre, et al., 1995; Cloitre & Liebowitz, 1991; McNally, et al., 1989; Nunn, Stevenson, & Whalan, 1984), as well as a self-referent recall bias for threatening words when arousal was increased (McNally, et al., 1989). The possibility of these effects being due to a response bias was ruled out in all studies. On the other hand, two studies of panic and agoraphobic patients using a similar phobic and neutral word presentation followed by a recall test revealed no recall bias for phobic words (Otto, McNally, Pollack, Chen, & Rosenbaum, 1994; Pickles & van den Broek, 1988). These two studies had small sample sizes and one used a cued recall test, which is thought to be less than optimal to show these effects. In general, researchers believe that panic disorder might be the exception to the rule that recall biases are difficult to find in anxiety disorders (Mathews & MacLeod, 1994).

In summary, research has provided evidence that biased recall is associated with depression and under specific conditions with the anxiety disorders. For example, biased recall was found in some studies for people with social phobia in recall of faces. However, the literature on social phobia is most consistent with the presence of a recall deficit resulting from selective attention to self-related

information.

### *Safety Behaviour*

Another key element in the Clark and Wells (1995; Clark, 2001) model is the concept of safety behaviours. Clark and Wells (1995; Clark, 2001) speculate that people with social phobia adopt behaviours, such as avoiding eye contact, trying not to attract attention, and censoring their own speech, designed to reduce the likelihood of a feared event. Unfortunately, at times these behaviours lead to the occurrence of the very event they are trying to prevent. For example, Clark and Wells (1995) described a woman who was afraid of people observing her hand shake. In response, she grasped her glass as tightly as possible, failing to realize that this action caused her hand to shake more, thereby creating the feared outcome. Clark and Wells (1995; Clark, 2001) also speculated that people with social phobia attribute the absence of feared outcomes to the use of the safety behaviours instead of recognizing that the outcome would not have occurred anyway.

Relatively few studies have explicitly examined safety behaviours in social phobia. Two studies found that exposure to feared situations plus instructions not to perform a safety behaviour reduced anxiety and unrealistic beliefs in patients with social phobia significantly more than exposure alone (Morgan, & Raffle, 1999; Wells, Clark, Salkovskis, Ludgate, Hackmann, & Gelder, 1995). These findings suggest that safety behaviours may indeed maintain negative beliefs. Alden and Bieling (1998) found that when people with social phobia used safety behaviours, their partners responded more negatively to them. This study supports the notion

that safety behaviours can produce negative outcomes. Again, however, more work is needed to link safety behaviours to the other components of the cognitive model.

### *Summary of the Cognitive Model*

In summary, Clark and Wells (1995; Clark, 2001) propose that an anxiety program that includes cognitive, behavioural and somatic components is activated when individuals with social phobia encounter a social situation. The activation of this anxiety program leads to behaviours and distortions in thinking that perpetuate the cycle of anxiety. Although some researchers have addressed a number of facets of this model, the literature that exists points to several questions that require further study. First, given the potential importance of anticipatory processing in triggering the anxiety program, there is a need to investigate the effect of activating particular appraisals of social events. Second, Clark and Wells (1995; Clark, 2001) suggest that the anxiety program occurs in a temporal sequence, however, the order of the components in this sequence and the particular relationships among the components have yet to be studied. Third, there is a need to examine the model in the context of complex interpersonal situations. I will discuss each of these issues in turn.

### *Activating the Anxiety Program*

In the Clark-Wells (1995; Clark, 2001) model, anticipatory processing appears to set the entire anxiety program into operation. If this is the case, it is particularly important to examine the features of this initial phase of the model. Although few studies have specifically examined the Clark-Wells (1995) concept of anticipatory processing, a number of studies have examined other cognitive factors



that are believed to trigger social anxiety, and although defined more narrowly, share some features with the concept of anticipatory processing. Included here are studies of appraisals and predictions about social events and priming manipulations.

### *Social Appraisals and Predictions*

Researchers have established that people with social phobia engage in negative self-referent thoughts and predictions prior to social interactions (e.g. Alden & Wallace, 1995; Cacioppo, Glass & Merluzzi, 1979; Glass & Arnkoff, 1983; Stopa & Clark, 1993). For example, Patterson, Churchill, and Powell (1991) found that participants with social anxiety displayed more negative cognitions in anticipation of meeting a stranger than did non-anxious participants. These individuals also tend to overestimate not only the probability, but also the cost, of negative evaluation and negative social outcomes (e.g. Foa, et al., 1996; Lucock & Salkovskis, 1988; McManus, Clark & Hackmann, 2000). Moreover, Butler and Mathews (1987) found that anxiety about negative events increased for students with test anxiety as the time of an exam neared, and that anxiety specific to negative exam-related events increased immediately prior to exam day. These studies support the notion of an anticipatory cognitive process that is intimately linked with social anxiety.

Several studies have manipulated anticipatory appraisals or predictions. DePaulo, Epstein, and LeMay (1990) had socially anxious and non-anxious women tell true and false stories to a confederate and either did or did not provide instructions that increased the salience of social evaluation. Socially anxious participants who expected to be evaluated told shorter and more superficial stories than all other participants. Alden and Bieling (1998) manipulated social appraisals

in socially anxious students through instructions prior to a social interaction and found that for socially anxious participants, negative appraisals of the situation led to less effective behaviour than did positive appraisals. In summary, different social appraisals led to different behaviours and interpersonal outcomes. These studies altered expectations and predictions about the event. One could speculate that, in accordance with the Clark-Wells (1995; Clark, 2001) model, when these predictions were negative, they triggered anxiety and self-protection, perhaps in the form of safety behaviours.

Another relevant line of work is studies examining the activation of social schemas. Cognitive schemas can be broadly defined as cognitive structures that "orient a person to a situation and help him select relevant details from the environment and recall relevant data" (Beck, Emery, & Greenberg, 1985, p. 54). As with other constructs, people have cognitive schemas about social events. More specifically, some writers use the term *relational schemas* to denote "cognitive structures representing regularities in patterns of interpersonal relatedness" (Baldwin, 1994, p. 381).

Cognitive researchers have demonstrated that it is possible to alter interpretations of events by priming different schemas. Much of this work was conducted in the context of basic laboratory tasks with students where priming was accomplished by strategies that activated a category, word or concept (Barsalou, 1992; Gavin, 1998; Strack, Schwarz, Bless, Kubler & Wanke, 1993). Several types of priming manipulations have been used, including presenting sentences relating words prior to testing recall (Barsalou, 1992), pairing tones with prime words (Strack,

et al., 1993), having participants choose three of four words to make a meaningful sentence (Bargh, Lombardi & Higgins, 1988; Wann & Branscombe, 1990), or using the flanker task (e.g. presenting a forename on a computer screen flanked by a surname that may or may not be associated with a famous person) (Macrae, Bodenhausen, Milne, Castelli, Schloerscheidt, & Greco, 1998).

Studies suggest that schema activation can influence how people perceive others. In particular, priming person-based exemplars has been found to alter the perception of ambiguous people (e.g. Bargh, et al., 1988; Macrae, et al., 1998; Strack, et al., 1993). An exemplar is defined as an example of the most typical member of a concept (Barsalou, 1992). For example, priming aggressive sports resulted in the perception of an ambiguous person as having more hostile and aggressive traits as well as aggressive interests (Wann, et al., 1990). Moreover, such manipulations have been shown to affect judgments of the self as well as actual behaviour (Macrae, et al., 1998).

Baldwin and his colleagues built on this idea to examine the effects of priming relational schemas. This research demonstrated that relational schemas could be primed by presenting word strings, photographs, and tones emitted from a computer. Priming negative relational schemas was found to affect ratings of students' own research ideas (Baldwin, Carrell, & Lopez, 1990), self-concept (Baldwin et al., 1990), enjoyment of pieces of fiction (Baldwin & Holmes, 1987; Baldwin & Sinclair, 1996), mood (Baldwin, 1994), and self-evaluation (Baldwin, 1994).

Two studies have investigated schema activation in the context of social anxiety. Baldwin and Main (1998) primed rejecting, accepting, or neutral schemas in students who scored high and low on self-consciousness. The results revealed that self-conscious students displayed more social anxiety when rejecting schemas were primed than when accepting and neutral schemas were primed. In another study, Glass and Arnkoff (1983) attempted to activate positive and negative cognitive schemas using thought prompts. Students with and without social anxiety were placed into either a positive, negative, or no prompt condition. They read five vignettes and then listed their thoughts after each vignette. Participants who were in a prompt condition saw one thought listed at the top of the page, whereas participants in the no-prompt condition received a blank page. In contrast to the findings of Baldwin and Main (1998), the initial thought did not affect participant's thought listing behaviour, and the researchers concluded that a more powerful manipulation was required.

Overall, it appears that people with social phobia make negative appraisals about social events. The importance of these appraisals can be seen in work demonstrating that treatment change is mediated by reductions in negative predictions (Foa, et al., 1996; Foa & Kozak, 1986; McManus, et al., 2000). Since changing appraisals has beneficial effects, it would be advantageous to understand more about the appraisal process, in particular how this process leads to changes in behaviour and anxiety.

Of the studies that attempted to alter anticipatory processing, either through experimental instructions or priming manipulations, three studies succeeded in

inducing negative processing and one did not (Alden & Bieling, 1998; Baldwin & Main, 1998; DePaulo, Epstein, & LeMay, 1990; Glass & Arnkoff, 1983). Given the limited number of studies and the inconsistent results, more research is needed to investigate factors that influence anticipatory processing. Moreover, manipulation studies have been limited by the use of analogue samples and work is required to establish that the results can be generalized to people with social phobia.

In summary, these studies suggest that people with social phobia operate as though guided by chronically negative anticipatory processes. Some of this work suggests that it is possible to alter predictions to be more negative in this population. One question that remains is whether it is possible to alter predictions to be more positive, and if so, what effect this would have on anxiety, cognition, and behaviour in people with social phobia. It is to this question that I now turn.

#### *Positive Anticipatory Processing*

Only two studies have attempted to create positive appraisals or schemas in people with social anxiety. Baldwin and Main (1998) attempted to activate a positive schema in their student sample. Results indicated that the activation of the negative relational schema, not the positive schema, was responsible for the between group differences. Although priming a negative schema influenced affect and self-evaluation, priming a positive schema had little effect on participants.

Alden and Bieling (1998) attempted to manipulate positive and negative social appraisals in their study. Although they found a difference between the two appraisal manipulations, it is possible that, similar to the study by Baldwin and Main (1998), the negative appraisal condition was responsible for the effect and that the

positive appraisal condition had little effect. Therefore, it remains unclear whether it is possible to manipulate positive appraisals and if so, what effect this manipulation would have on people with social phobia.

Other work suggests that it might be difficult to create positive anticipation in people with social phobia. First, these people respond to ambiguous events in a less positive manner than other people. For example, two studies found that individuals with social phobia lack the positive interpretation bias found in controls. Constans, Penn, Ihen, and Hope (1999) found that socially anxious students interpreted ambiguous interpersonal events in a more threatening manner than did low-anxious students, an effect that was due to a lack of the positive interpretation bias found in low-anxious students. In a similar vein, Hirsch and Mathews (2000) had patients with social phobia and control participants complete a word task in which they responded to ambiguous incomplete sentences. They found that patients with social phobia lacked the online positive inferential bias found in controls. Whereas non-phobic individuals interpret ambiguous stimuli in a positive manner, people with social phobia do not.

Further evidence suggests that drawing attention to positive events may actually heighten the apprehension experienced by people with social phobia. For example, Wallace and Alden (1995) provided male students with positive, negative, or no feedback after a conversation with a confederate. Results revealed that socially anxious participants who had received positive feedback believed that others would expect more of them in the next interaction.

In a second study by Wallace and Alden (1997), patients with social phobia and controls engaged in an interaction with a confederate that was manipulated to be successful or unsuccessful. Interestingly, for participants with social phobia, the successful social interaction led to more self-protective concerns, and more anxiety than the unsuccessful interaction. The successful interaction also led these individuals to believe that others expected more of them and that they would fall further below these expectations in the future (Wallace & Alden, 1997). The two studies suggest that creating a positive social situation may actually increase anxiety and anxiety-related behaviour, which is the reverse of what occurs in non-anxious individuals.

Alden, Mellings, and Laposa (2001) demonstrated that highlighting the positive outcomes of a social interaction was not as effective in altering predictions about future interactions as highlighting the absence of negative outcomes. Other researchers have also found that positive feedback is perceived as less positive by individuals with social anxiety than by controls (Asendorpf, 1987), and that patients with social phobia interpret positive social events as signals of impending social danger (Alden & Mellings, 2000). Taken together, these studies suggest that people with social phobia respond differently to positive events than do non-anxious individuals. They appear to have difficulty accepting positive information, and may not process this information as positive. Some work even suggests that positive feedback or expectations of positive events heightens anxiety instead of reducing it. However, few studies have investigated this notion, and some of these were done

with students. This points to the need for more research on social phobia and positive events.

### *Temporal Sequence*

Clark (2001; Clark & Wells, 1995) suggests that the components of the cognitive model occur in a particular temporal sequence, although some steps in the sequence are not clearly specified. It is clear that Clark (2001; see also Clark & Wells, 1995) assumes that the anxiety program begins at the level of "perceived social danger." Clark's (2001) writings underscore the importance of cognitive processes in initiating the anxiety program, but they are vague about the role of affect itself. Clark (2001; Clark & Wells, 1995) describes the concept of anticipatory anxiety separately from his description of the anxiety program, however, there appears to be an underlying assumption that this concept is tied to the inception of the anxiety program. For this reason, it makes sense to include anticipatory anxiety as part of the perceived social danger component of the model. Stated another way, appraisal may be the cognitive aspect and anticipatory anxiety the emotional aspect of perceived social danger. As a result, any predictions that involve the perceived social danger component of the model should assess both appraisal and anxiety, alone and together as an interaction.

According to Clark's (2001; Clark & Wells, 1995) model, perceived social danger leads to three of the processes in the anxiety program: self-focused attention, in situation anxiety, and safety behaviours (see Figure 1). If this is so, appraisal and anticipatory anxiety should predict the latter three variables. The model as depicted in the diagram also indicates that in-situation anxiety and safety



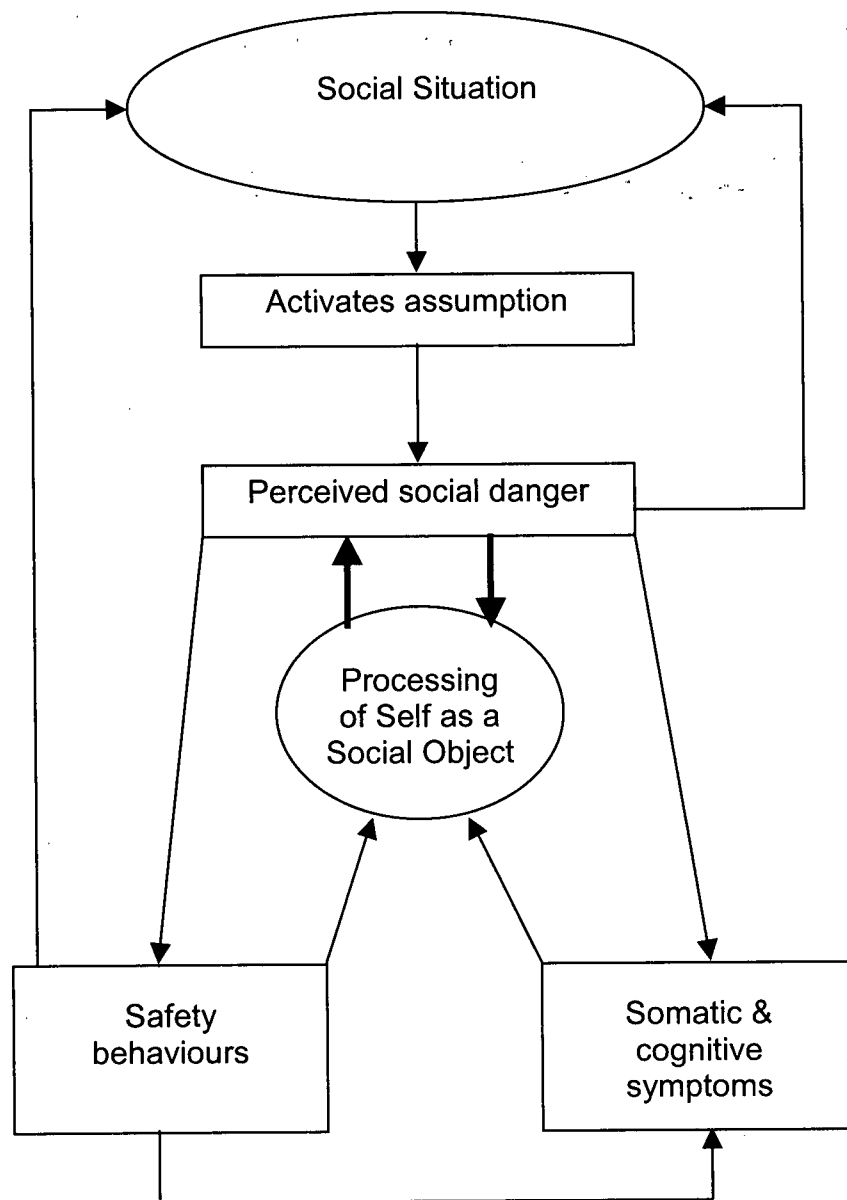


Figure 1. A diagram of the Clark and Wells cognitive model (adapted from Clark & Wells, 1995; Clark, 2001).

behaviours lead back to further self-focused attention. Clark's (2001) writings make it clear that he views self-focused attention as playing a pivotal role in perpetuating anxiety because it leads to selective processing of certain types of social information, which biases social judgments and memories. However, virtually no empirical work has examined whether the elements of his model conform to the predicted sequence, and in particular whether self-focused attention occurs when and where the model stipulates.

It is important to note that Clark and Wells (1995; Clark, 2001) are not the only theorists to consider self-focused attention. Among others, Duval and Wicklund (1972) and Buss (1980) and his colleagues developed theories based on the concept of self-awareness, which has many parallels with Clark's notion of self-focused attention. Interestingly, these models yield predictions, particularly about self-focused attention, that differ from those of Clark and Wells (1995; Clark, 2001).

Duval and Wicklund (1972) proposed that a self-focus led to an awareness of discrepancies between current behaviour and standards for the situation. This awareness was believed to produce discomfort or anxiety, and attempts to escape from the situation or mental disengagement if escape was impossible. Consistent with this model, a person with social phobia who is apprehensive about an upcoming interaction is likely to perceive a discrepancy between his or her behaviour and the standards for the situation. This would lead to increased anxiety and disengagement from the situation. In other words, this model would predict that self-focused attention leads to anxiety, which then leads to disengagement (i.e. safety behaviours).

Buss (1980) distinguished two types of self-awareness, private, or awareness of personal aspects of oneself, and public, or awareness of public aspects of oneself. Buss (1980) also proposed that some people have a trait-like propensity toward self-awareness, which he labeled self-consciousness. Of these concepts, the closest parallel to the depiction of self-focused attention in the Clark and Wells (1995; Clark, 2001) theory is public self-awareness, a state of enhanced awareness of oneself as an object of social scrutiny, although Clark's (2001; Clark & Wells, 1995) view of self-focused attention also contains some elements of the Buss (1980) concept of private self-awareness. According to Buss (1980), public self-awareness typically produces concern or anxiety about how one appears to others. In people who are prone to shyness, this concern leads to social anxiety and to inhibition of behaviour and attempts to fit into the situation (safety behaviours). Although there are important differences between the Duval and Wicklund (1972) and Buss (1980) models, both place self-focused attention earlier in the sequence of events that lead to social anxiety and behavioural inhibition/disengagement than the Clark (2001; Clark & Wells, 1995) model. Specifically, self-focused attention precedes social discomfort and safety behaviours. In addition, both Duval and Wicklund (1972) and Buss (1980) emphasize the role of self-focused attention in increasing the salience and intensity of internal emotional states.

In summary, a comparison of predictions derived from the two sets of theories would be useful to understand the temporal sequence of events in social phobia. (1) The two predictions made by Clark and Wells (1995; Clark, 2001) are: (a) that appraisal and anticipatory anxiety lead to self-focused attention, in-situation

anxiety, and decreased self-disclosure; and (b) that self-disclosure and in-situation anxiety lead to self-focused attention. (2) Predictions consistent with the Duval and Wicklund (1972) and Buss (1980) models are: a) self-focused attention leads to anxiety which then leads to decreased self-disclosure; and b) self-focused attention increases the salience or intensity of anticipatory anxiety, which heightens situational anxiety. The latter prediction implies that self-focused attention interacts with anticipatory anxiety to increase anxiety in the situation. Either self-focused attention or anticipatory anxiety alone should have less effect. These various predictions will be evaluated.

### *Self-disclosure*

The third important issue to address in this study is the type of interpersonal situation that should be used to investigate the model. Research on cognitive processes in social phobia has generally studied public speaking and first meeting situations, rather than the types of social behaviours that are more directly linked to friendship formation. One important aspect of forming friendships is self-disclosure.

Self-disclosure is central to the development and maintenance of friendships and intimate relationships (Altman & Taylor, 1973; Chaikin & Derlega, 1974; Chelune, 1979; Cohen, Sherrod, & Clark, 1986; Cozby, 1973; Jones, 1991; Laurenceau, Barrett, & Pietromonaco, 1998; Planalp, & Benson, 1992; Walker, & Wright, 1976). Two general principles emerge from the self-disclosure literature, the liking effect and the reciprocity effect (Gaebelein, 1976; Savicki, 1972; Worthy, Gary, & Kahn, 1969). Research has found that people have greater liking for those who self-disclose (Collins & Miller, 1994; Cozby, 1973; Curtis & Miller, 1986;

Papsdorf & Alden, 1998). However, the level of intimacy must be appropriate for the situation. People like others who match their level of openness and self-disclosure, in other words, those who engage in reciprocal self-disclosure (Altman & Taylor, 1973; Chaikin & Derlega, 1974; Chelune, 1979; Cozby, 1973; Daher & Banikiotes, 1976; Jourard, 1971; Meleshko & Alden, 1993).

Reciprocal self-disclosure is affected by a number of factors. The established level of closeness of the relationship (i.e. friend vs stranger), characteristics of the partner, such as gender or age, and topics of discussion influence willingness to disclose (Chaikin, & Derlega, 1974; Derlega, Wilson, & Chaikin, 1976; Morgan, 1976; Morton, 1978; Snell, 1989). Another factor is the person's social expectation. When people expect negative social consequences, they are less willing to reciprocate intimate disclosures (Strassberg, Adelstein, & Chemers, 1988).

Since people with social anxiety are known to have negative expectations, it would not be surprising if self-disclosure was mediated by social anxiety (Snell, 1989). However, the literature is unclear about whether distinct patterns of self-disclosure are associated with social anxiety (Jones & Carpenter, 1986). Some studies found that shy students reported lower levels of self-disclosure on questionnaires (Jones & Briggs, 1984; Snell, 1989). Research also suggests that individuals with social anxiety talk for less time, disclose less personal and intimate information, and display a lack of reciprocal disclosure compared to non-anxious individuals (Bruch, Gorsky, Collins, & Berger, 1989; Cheek & Buss, 1981; Leary, Knight, & Johnson, 1987; Meleshko & Alden, 1993). One study found that this

pattern of low disclosure was exacerbated when these individuals were led to believe that they were being evaluated. De Paulo, Epstein, and LeMay (1990) found that when people high in social anxiety thought they were being evaluated, they spent less time talking and disclosed less personal and intimate information. Meleshko and Alden (1993) found that participants with social anxiety disclosed at a moderate level of intimacy in all interactions, regardless of the intimacy level of their partner's disclosure, which pointed to a rigidity in their behaviour. In contrast to these studies, other researchers found no differences between socially anxious and non-anxious people on either length of disclosure or frequency of self-referent statements (Alden & Bieling, 1998; DePaulo, Epstein, & LeMay, 1990; Jacobson & Anderson, 1982; Papsdorf & Alden, 1998).

Within the Clark-Wells (1995) model, low self-disclosure can be viewed as a safety behaviour (e.g. Alden & Bieling, 1998; Wells et al., 1995). Thus, when individuals with social phobia anticipate social danger, they may limit the intimacy of their comments in order to protect themselves from predicted negative evaluation. Unfortunately, research suggests that low disclosure, like other safety behaviours, may produce negative consequences since low disclosure leads to less liking on the part of others (e.g., Alden & Bieling, 1998; Meleshko & Alden, 1993; Miller, 1990). In particular, when people fail to reciprocate the disclosures of others, they are viewed as "different" and others are less likely to initiate contact with them (e.g., Papsdorf & Alden, 1998). All in all, given the critical role of disclosure in friendship development, research that examines the cognitive processes outlined in the Clark-Wells (1995) model in a self-disclosure context would be valuable.

### *Current Study*

The current study investigated a number of the elements of the Clark and Wells (1995; Clark, 2001) model in the context of the classic self-disclosure paradigm (Jourard, 1971). My first goal in this work was to investigate multiple features of the model in one study. My second goal was to investigate anticipatory processing by manipulating participants' appraisals of the social situation. My third goal was to perform a preliminary examination of the temporal sequence of variables in the cognitive model. I made the following predictions:

1) Participants with social phobia would display more self-focused attention, less other-focused attention, poorer recall of other-related information, more anxiety during the situation, and less self-disclosure than control participants. This prediction follows directly from the Clark and Wells (1995; Clark, 2001) model and earlier research.

2) It would be possible to manipulate appraisals and that the appraisal manipulation would lead to specific changes in the elements of the anxiety program. Specifically, increasing negative anticipatory appraisals would be associated with more anxiety and self-focused attention, and less other-focused attention, recall of other-related information, and self-disclosure for participants with social phobia, but not non-phobic participants. No specific predictions were made about the effects of the positive appraisal manipulation. On one hand, a positive appraisal might reduce the anxiety program, as suggested by work on university samples, on the other hand, it might increase apprehension and the other elements of the anxiety program, as suggested by earlier work on clinical samples.

3) In light of the absence of previous studies on temporal sequence, this portion of the dissertation was exploratory. In order to begin to map out the interconnections between the various components of the model, I examined the following questions: a) Does perceived social danger, including cognitive appraisal and anticipatory anxiety, set the anxiety program into motion? b) What is the role of self-focused attention in the model? c) Do the temporal sequence findings fit better with the Clark-Wells (1995; Clark, 2001) explanation or the explanations provided by Duval and Wicklund (1972) and Buss (1980)?

#### Method

##### *Participants*

Participants were 42 individuals seeking treatment for social phobia and 42 community volunteers.<sup>1</sup> Patients were recruited from outpatient psychology programs ( $n = 18$ ), and advertisements for treatment ( $n = 24$ ).<sup>2</sup> Control participants were recruited from the community through advertisements and were offered a small honorarium for their participation (see Appendix A).

All volunteers completed a telephone screen before they were invited to participate in the study. Among the patient group, 19 callers were excluded because generalized social phobia was not their primary diagnosis, and 6 were excluded because their social phobia was at a sub-clinical level. Of the 42

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<sup>1</sup> Originally the number of participants in the data cells was unequal. Since the assumption of homogeneity of variance is irrelevant for balanced experiments, I used the accepted procedure of equalizing the number of participants in the cells rather than adjusting the F-tests (see Glass, Peckham, & Sanders, 1972). As a result, six participants were randomly dropped from two cells (3 from control/negative; 3 from phobic/positive).

<sup>2</sup> All of the analyses were completed comparing the sample of patients recruited through outpatient psychology programs to those recruited through advertisements. Results revealed no significant differences between the two samples on any variables, therefore, the data were combined and analyses conducted on the entire sample were reported.



participants contacted from the treatment waiting list at the Vancouver Hospital and Health Sciences Centre – UBC Site, 62% agreed to participate in the study. The most common reasons for patients to decline were scheduling difficulties and feeling too anxious. Among the control group, 40 volunteers were excluded at the telephone screen due to the presence of a psychological disorder or the use of psychiatric medication, and 5 were excluded because they were receiving psychological treatment. Participants who entered the study in the control group did not meet diagnostic criteria for any psychological disorder.

When participants arrived at the laboratory, diagnostic status was confirmed with the ADIS-IV (Anxiety Disorders Interview Schedule for DSM-IV; Brown, Di Nardo & Barlow, 1994), a structured clinical interview that assesses anxiety disorders as well as mood, somatoform, and substance use disorders according to the DSM-IV criteria. DSM diagnoses based on the ADIS have been shown to have good test-retest reliability and inter-rater agreement (Di Nardo, Moras, Barlow, Rapee & Brown, 1993). In the current study, the interview was administered by a graduate student who was trained and experienced with the ADIS-IV. A second doctoral-level graduate student who was trained and experienced with the ADIS-IV rated 15 interviews with GSP participants, and 16 interviews with control participants. Cohen's kappa computed between the diagnostic decisions of two raters revealed good interrater agreement,  $k = .87$ ,  $p < .05$ . Disagreements between raters arose from differences in the distinction between subthreshold and threshold diagnoses. On the basis of the ADIS, 12 patients were excluded because

generalized social phobia was not primary, and 2 participants were excluded due to sub-clinical diagnoses. None of the control participants were excluded at this stage.

Participants within each group were randomly assigned to the two experimental conditions with the stipulation that an equal proportion of participants in each group and condition was assigned to each script, confederate, and experimenter. Participants were balanced among groups and conditions for the demographic variables of age, gender, and level of education. Demographic and clinical information can be seen in tables 1 and 2.

### *Personnel*

#### *Experimenters*

Three experimenters (1 male graduate student, 1 female graduate student, and 1 female undergraduate student) were trained to follow a scripted protocol to deliver the experimental instructions (see Appendix B). Their duties included: (1) conducting laboratory procedures, (2) administering questionnaires, (3) rating participant and confederate behaviour (see Appendix C), and (4) conducting the debriefing (see Appendix D). All personnel were trained in the appropriate use of confidential information.

#### *Confederates*

Two female research assistants (1 graduate student and 1 undergraduate student) served as the experimental confederates. In order to provide consistent behaviour across participants, they were trained to follow a scripted disclosure and to display scripted nonverbal behaviours (see Appendix E). The confederates participated in a 20-hour training program to learn their roles. Their duties were:

Table 1

*Demographic Characteristics of Participants for Groups and Conditions*

Variable	Social phobia		Control	
	Positive	Negative	Positive	Negative
Age	34.76 (10.95)	33.38 (9.40)	38.33 (10.93)	36.19 (13.11)
Education	15.67 (3.54)	15.71 (2.51)	16.76 (3.28)	17.05 (3.71)
Ethnicity				
Caucasian	76.2%	71.4%	90.5%	90.5%
Asian/African	23.8%	28.6%	9.6%	9.6%
First Language				
English	95.2%	85.7%	90.5%	85.7%
Other	4.8%	14.3%	9.6%	14.3%
Gender (% male)	47.6%	47.6%	47.6%	47.6%
Marital Status				
Never married	61.9%	61.9%	42.9%	81.0%
Married/Common-law	33.3%	28.6%	38.0%	9.5%
Divorced/Widowed	4.8%	9.5%	19.1%	9.5%
Occupation				
Unemployed/student	28.5%	28.6%	33.3%	47.6%
Professional/business	38.1%	28.5%	33.3%	33.4%
Tradesman/labourer	9.6%	14.3%	4.8%	0
Retail/office assistant	14.3%	28.6%	9.5%	14.3%
Other (i.e. homemaker)	9.5%	0	19.1%	4.8%

*Note.* Standard deviations in parentheses.

Table 2

*Clinical Characteristics for Groups and Conditions*

Variable	<u>Social phobia</u>		<u>Control</u>	
	Positive	Negative	Positive	Negative
Comorbid Diagnoses				
GAD	4.8%	14.3%	0	0
Depression/Dysthymia	23.9%	23.9%	0	0
Panic Disorder	9.6%	0	0	0
Specific Phobia	0	4.8%	0	0
Past treatment	42.9%	71.4%	0	0
Current medication	28.6%	47.6%	0	0

(1) to interact with participants in accordance with the scripted information, and (2) to rate participant and experimenter behaviour (see Appendix C). The assistants were blind to the hypotheses of the study and to the group and condition assignment of participants.

*Observers*

One graduate student and two undergraduate students served as observers. Observers were trained to rate experimenter and confederate behaviour using the same measures used by the experimenter and confederate. Ratings made by observers were used to check the reliability of confederate and experimenter ratings. The observers were blind to the hypotheses and group assignments of participants.

### *Procedure*

The experimenter greeted participants and asked them to complete a consent form (see Appendix F), and a bogus life values and interests questionnaire (see Appendix G). To make the manipulation appear realistic, the experimenter examined the participant's life values and interests questionnaire, giving an appearance of concentration and thoughtfulness, then provided one of two sets of instructions (the experimental manipulation) followed by the appraisal questionnaire (manipulation check). Participants were then introduced to the confederate and engaged in an interaction of approximately 5 minutes duration. The confederate followed one of two randomly assigned self-disclosure scripts during the interaction (see Appendix E).<sup>3</sup> Two scripts were used to ensure that effects were consistent across different scripts regardless of the content.

Prior to the interaction, participants were presented with the following instructions:

This study examines your perceptions of an interaction. In a moment, I will introduce you to our assistant and you will have a conversation. In this task, I would like you to get to know each other, just as if you met at work or a gathering. We need to structure the task a bit so I'd like you to take turns talking. When one person is talking, the other person will listen and then you will switch roles. When it is your turn to talk, try to talk for at least a couple of minutes. I'd like you to talk about something that has been on your mind this week. Please don't talk about this study.

The experimenter informed the participant that he or she would be behind the one-

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<sup>3</sup> The two self-disclosure scripts were written to provide intimate comments about an important life event, and to balance positive and negative information (see Appendix E). The two scripts were matched on length, intimacy, and valence. Each script was designed to take approximately 5 minutes to present. The scripts were piloted on six expert judges who rated the intimacy and valence of each of the scripts. The scripts were rated as very intimate (illness:  $M = 6.00$ ,  $SD = 0.58$ ; separation:  $M = 6.17$ ,  $SD = 0.75$ ), and as containing an equal balance of positive and negative content (illness:  $M = 3.71$ ,  $SD = 1.11$ ; separation:  $M = 3.83$ ,  $SD = 0.98$ ). There was no significant multivariate difference between the scripts for intimacy or valence,  $F(2,4) = 0.57$ ,  $p = .61$ .

way mirror.

The confederate always began the interaction. Immediately following the interaction, the confederate left the room and participants completed the dependent measures (see Appendix G). The confederate and experimenter completed measures rating participant affect and self-disclosure (see Appendix C). Finally, the experimenter administered the BDI, a demographic questionnaire (see Appendix G), and the ADIS-IV. In the debriefing participants were asked what they thought about their partner and how much they believed the manipulation in order to assess for suspicion about the confederate's disclosure and the manipulation. They were provided with information about the study. Participants were also probed for any negative effects due to the confederate's disclosure or the manipulations. All patients were offered appropriate resources and/or treatment as necessary, and all questions were answered before they left. Participants were informed that they could contact us if they had further concerns or questions about the study, however, nobody contacted us (see Appendix D).

#### *Experimental Manipulation*

Prior to the interaction, the participant received one of the following sets of instructions.

##### *Negative Appraisal*

Clinical writers say that interactions like this go better if the participants are similar in how long they talk and in how open they are with each other. However, it can also be risky to open up and reveal oneself to another person because your partner might dislike or disapprove of something you say. People can even be critical of others. If one matches their partner's level of openness, one can't be certain whether one will be approved of or disapproved of and disliked. As it turns out, you have answered the life values and interests questionnaire in a

different manner than our assistant. It looks like you are very different from our assistant on the personal traits we measured. Our experience suggests that it may take some effort for the two of you to understand and relate to each other.

### *Positive Appraisal*

Clinical writers say that interactions like this go better if the participants are similar in how long they talk and how open they are with each other. Our research shows that this is a very strong effect and that this is why people really like each other and hit it off. We find that people like and approve of people who talk at the same level of intimacy that they do themselves. If one matches their partner's level of openness, one is pretty certain to be liked and approved of. As it turns out, you have answered the life values and interests questionnaire in a similar manner to our assistant. It looks like you are very similar to our assistant on the personal traits we measured. Our experience suggests that it will be easy for the two of you to understand and relate to each other.

### *Measures*

#### *Life Values and Interests Questionnaire*

Participants completed a 7-item questionnaire about their opinions and preferences. This measure was included to lead the participants to believe that their personality style was compared to that of the assistant (Appendix G).

#### *Descriptive Questionnaires*

*Social Interaction Anxiety Scale / Social Phobia Scale (SIAS / SPS; Mattick & Clarke, 1998).* In the present study, the SIAS and SPS were completed as measures of symptom severity. The SIAS is used to assess fears of general social interactions and the SPS is used to assess fears of being scrutinized during activities. The items are rated on a 5 point Likert-type rating scale ranging from 0 (not at all) to 4 (very much). The scales have demonstrated high levels of internal consistency, with Cronbach's alphas of .93 for the SIAS and .89 for the SPS, and

high test-retest reliabilities over four (SIAS  $r = .92$  and SPS  $r = .91$ ) and 12 weeks (SIAS  $r = .92$  and SPS  $r = .93$ ). Mattick and Clarke (1998) demonstrated that these scales have good discriminant validity, correlate with other social fear instruments, and do not correlate with measures of social desirability.

*Beck Depression Inventory (BDI; Beck, Rush, Shaw & Emery, 1979).* The BDI is a 21-item questionnaire that assesses the severity of depressive symptoms during the past week. Participants rate each item on a 4-point scale ranging from 0 to 3. Items are summed to yield a total depression score (minimum 0 and maximum 63). Investigators have reported internal consistency ratings of .86 and test-retest reliability ratings between .48 and .86 (Beck, Steer & Garbin, 1988). Concurrent validity with the Hamilton rating scale for depression was .73, while concurrent validity with the MMPI depression scale was .76 (Beck, et al, 1988). In the present study BDI scores were used as covariates to determine if the results were due to dysphoria rather than social phobia.

#### *Personnel Behaviour Checks*

*Ratings of confederate behaviour.* The experimenter rated the confederate on three 7-point Likert-type scales, (a) warmth and friendliness, (b) intimacy of disclosure, and (c) valence of disclosure (Appendix C). The observer also rated confederate behaviour in 84% of the interactions. There was good agreement between the experimenter and observer ratings (see Table 3).<sup>4</sup>

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<sup>4</sup> The confederates and experimenters were intensively trained to perform their roles consistently. As a result, ratings of confederate and experimenter behaviour differed little from participant to participant. Although this was desired to add control to the study, the small standard deviations in the ratings produced by this consistency made it impossible to assess inter-rater reliability by the usual standards. Since these analyses require variability in the data that did not exist for these variables, no valuable information could be gained from correlation analyses. The means and standard deviations presented in tables 3 and 4 demonstrate that the ratings of the confederate, experimenter, and observer were very similar.



*Ratings of script adherence.* During the interaction, the experimenter checked off each of the scripted sentences (Appendix C). The number of errors for each participant were summed and compared among groups and conditions to ensure consistent script adherence. Pearson correlation coefficients were computed between the script adherence scores of two raters, who rated 75% of these forms, and revealed good inter-rater reliability,  $r = .95$ ,  $p < .001$ .

*Experimenter Behaviour.* The confederate rated the experimenter on two 7-point Likert-type scales of behavior, (a) warmth and friendliness, and (b) clarity of instructions (Appendix C). The observer also rated experimenter behaviour in 84% of the interactions. There was good agreement between confederate and observer ratings (see Table 4).<sup>4</sup>

#### *Manipulation Check and Dependent Measures*

Participants completed four types of dependent variables that measured: (1) cognitive appraisal, (2) cognition, (3) affect, and (4) self-disclosure.

*Appraisal Questionnaire (AQ).* The first purpose of this questionnaire was to assess whether the manipulations were effective. On this four-item questionnaire participants rated how similar their partner was to them, their expectations of how well they would get along, how confident they were about responding, and the expected openness of their disclosure (Appendix G). Each item was rated on a 7-point Likert-type scale ranging from not at all (one) to very much (seven). Items were summed to yield a total score. Cronbach's alpha was .76 for the AQ.

A second appraisal measure was calculated to determine participant's cognitive appraisals to be used in the investigation of the temporal sequence of the

Table 3

*Means and Standard Deviations for Ratings of Confederate Behaviour*

Variable	Social phobia		Control	
	Positive	Negative	Positive	Negative
Experimenter ratings				
Warmth/friendliness	3.95 (.38)	4.00 (.45)	4.00 (0)	4.00 (0)
Intimacy of disclosure	6.81 (.51)	6.95 (.22)	7.00 (0)	7.00 (0)
Valence of disclosure	3.48 (.51)	3.43 (.68)	3.57 (.51)	3.71 (.46)
Script errors	.71 (1.19)	1.00 (1.10)	.57 (1.21)	.24 (.54)
<i>n</i>	21	21	21	21
Observer ratings				
Warmth/friendliness	4.00 (.47)	3.89 (.32)	3.94 (.25)	4.00 (.53)
Intimacy of disclosure	6.47 (.51)	6.53 (.84)	7.00 (0)	6.80 (.41)
Valence of disclosure	3.26 (.73)	3.21 (.71)	3.31 (.48)	3.27 (.70)
Script errors	1.00 (1.37)	.95 (1.13)	.69 (1.25)	.36 (.67)
<i>n</i> <sup>a</sup>	19	19	16	15

Note. Standard deviations in parentheses.

<sup>a</sup>The observer did not rate all interactions.

Table 4

*Means and Standard Deviations for Ratings of Experimenter Behaviour*

Variable	Social phobia		Control	
	Positive	Negative	Positive	Negative
Confederate ratings				
Warmth/friendliness	4.37 (.72)	4.09 (.23)	4.19 (.51)	4.25 (.77)
Clarity	6.79 (.36)	6.45 (.78)	6.81 (.40)	6.90 (.30)
<i>n</i>	21	21	21	21
Observer ratings				
Warmth/friendliness	4.37 (.60)	4.32 (.75)	4.00 (.37)	4.20 (.56)
Clarity	6.74 (.56)	6.58 (.96)	6.94 (.25)	6.93 (.26)
<i>n</i> <sup>a</sup>	19	19	16	15

*Note.* Standard deviations in parentheses.

<sup>a</sup>The observer did not rate all interactions.

Clark (2001) model. This measure consisted of two items – expectations of how well they would get along, and how confident they were about responding. Items were rated as described above. These two items were chosen because they best reflected the aspects of cognitive appraisal that would be important to consider in terms of the perceived social danger component in the temporal sequence. These 2 items were summed to yield a total score. Cronbach's alpha was .72 for the cognitive appraisal measure.

*Cognition.* 1. Focus of Attention Questionnaire (FAQ; Woody, 1996; see Appendix G). The FAQ is a 10-item scale including two 5-item subscales that reflect self-focused attention and other-focused attention. Self-focused attention refers to directing attention to one's own behaviour and feelings of anxiety (e.g. I was focusing on what I would say or do next). Other-focused attention refers to directing attention to one's partner or the setting (e.g. I was focusing on the other person's appearance or dress). Participants rated each item on a 5-point scale ranging from not at all (one) to very much (five), depending on how strongly the participant attended to the item. Items were averaged to yield two focus of attention scores—self-focus, and other-focus.

Woody, Chambless, and Glass (1997) reported that the self-focus and other-focus subscales are independent,  $r = -.07$ . A factor analysis of the FAQ items revealed that all items loaded highly ( $>.42$ ) on their respective subscales, a finding supporting the discriminant validity of the subscales (Woody, et al., 1997). In addition, private self-consciousness was found to correlate significantly with the self-focus subscale,  $r = .29$ ,  $p < .05$ , but not with the other-focus subscale,  $r = .14$ ,  $p > .05$ . In the original study, Cronbach's alpha was .76 for the self-focus and .72 for the other-focus subscales. In this study, Cronbach's alphas were .89 for the self-focus subscale, and .44 for the other-focus subscale.

## 2. Explicit cued recall of social information (Mellings & Alden, 2000).

Participants answered 9 questions about their partner and their partner's disclosure (see Appendix G). Seventeen discrete pieces of information were included within the 9 questions. The number of points received for correct answers were summed

to yield a total recall score out of 17. This instrument was used in previous studies and was found to reflect recall of partner and setting information (Hope, Heimberg & Klein, 1990; Mellings & Alden, 2000). In order to establish reliability of scoring, two independent raters (one graduate student and one undergraduate student) scored the accuracy of the answers. The second rater scored 75% of the participant answers. A Pearson correlation computed between the two sets of scores revealed good inter-rater agreement,  $r = .81$ ,  $p < .001$ .

*Affect.* 1. Anxiety thermometer. Participants provided two global measures of subjective anxiety. One rating was made prior to the interaction and the second was made after the interaction, but in reference to how the participant felt during the interaction. The anxiety thermometer is a 0 to 100 scale on which participants rated how anxious or nervous they felt at that moment, ranging from not at all anxious (one) to extremely anxious (one-hundred) (see Appendix G).

2. Total anxiety. Participants provided 5 ratings for anxiety, including 4 behavioural indices of anxiety, (a) pauses, (b) fidgeting, (c) eye contact, and (d) body tension, and a global measure of subjective anxiety. These ratings were made on 7-point Likert-type scales that ranged from not at all (one) to a lot (seven) (see Appendix G). Ratings were summed to yield a total anxiety score. Cronbach's alpha for the total score was .85.

The confederate rated the participant's behavioural indices of anxiety (pauses, fidgeting, eye contact, and body tension), and global anxiety using the same scales as the participants (see Appendix C). Anxiety ratings were summed to yield a total score. Inter-rater reliability of confederate ratings was established by

having the experimenter make similar ratings. A Pearson correlation computed between these ratings revealed good inter-rater reliability,  $r = .94$ ,  $p < .001$ . Cronbach's alpha was .77 for the confederate-rated anxiety score and .78 for the experimenter-rated anxiety score.

3. Positive and Negative Affect Scales (PANAS; Watson, Clark & Tellegen, 1988). The PANAS consists of 20 adjectives, each rated on a 5-point Likert-type scale, indicating how the participant feels at that moment (see Appendix G). Ratings range from very slightly or not at all (one) to extremely (five). Ten of the adjectives measure positive affect, for example enthusiasm, activity and activation. Ten adjectives measure negative affect in the form of anger, contempt, disgust, guilt, fear, and nervousness. Validation studies have demonstrated good internal reliability with coefficient alphas ranging from .86 - .90 for the positive affect scale and .84 - .87 for the negative affect scale (Watson, et al., 1988). These scales have also been shown to have high convergent and divergent validity (Watson, et al., 1988). Coefficient alphas for this sample were .90 for the positive affect scale, and .89 for the negative affect scale.

*Self-disclosure ratings.* Participants rated their performance on two 7-point Likert-like scales that reflected the intimacy of their disclosures (Appendix G). Items were summed to create a total score. Cronbach's alpha for this scale was .72.

The confederate rated participants' self-disclosure during the conversation on the same dimensions used by the participants (see Appendix C). Again, items were summed to create a total score. In order to establish inter-rater agreement, the experimenter rated participants' self-disclosure as well. A Pearson correlation

computed between these ratings revealed good reliability,  $r = .86$ ,  $p < .001$ .

Cronbach's alpha for the total confederate-rated disclosure score was .68.

Cronbach's alpha for the total experimenter-rated disclosure score was .62.

### Results

An alpha of .05 was established as the criterion for all analyses unless otherwise noted. Means and standard deviations for the descriptive questionnaires can be seen in table 5.

Table 5

#### *Means and Standard Deviations for Descriptive Questionnaires*

Variable	Social phobia		Control	
	Positive	Negative	Positive	Negative
SIAS	47.83 (12.40)	48.22 (12.14)	11.71 (6.57)	15.38 (8.80)
SPS	31.73 (16.06)	33.97 (15.01)	4.95 (4.81)	4.87 (3.69)
BDI	16.86 (8.71)	15.38 (7.47)	3.81 (3.67)	4.43 (4.04)

*Note.* Standard deviations in parentheses. SIAS = Social Interaction Anxiety Scale; SPS = Social Performance Scale; BDI = Beck Depression Inventory.

#### *Demographic and Clinical Characteristics*

A 2 (group) by 2 (condition) multivariate analysis of variance (MANOVA) conducted on age and education revealed no significant differences for group,  $F(2, 79) = 1.96$ ,  $p = .15$ , condition,  $F(2, 79) = 0.32$ ,  $p = .73$ , or the group by condition interaction,  $F(2, 79) = 0.03$ ,  $p = .97$ . Chi-square analyses, conducted on the

distribution of the other demographic characteristics across group and condition, revealed no significant effect for group for gender,  $\chi^2(1, N = 84) = 0, p = 1.00$ , ethnicity,  $\chi^2(1, N = 84) = 1.13, p = .29$ , first language,  $\chi^2(1, N = 84) = 0.001, p = .97$ , marital status,  $\chi^2(2, N = 84) = 0.88, p = .64$ , or occupation,  $\chi^2(4, N = 84) = 5.96, p = .20$ . Results revealed no significant effect for condition for gender,  $\chi^2(1, N = 84) = 0, p = 1.00$ , ethnicity,  $\chi^2(1, N = 84) = 1.31, p = .29$ , first language,  $\chi^2(1, N = 84) = 2.11, p = .15$ , marital status,  $\chi^2(2, N = 84) = 3.35, p = .19$ , or occupation,  $\chi^2(4, N = 84) = 5.17, p = .27$ . These analyses indicate that the groups and conditions did not significantly differ on these demographic characteristics.

Chi-square analyses, conducted on the distribution of clinical characteristics across group and condition, revealed a significant effect for group for comorbid diagnosis,  $\chi^2(1, N = 84) = 16.80, p < .001$ , past treatment,  $\chi^2(1, N = 84) = 39.13, p < .001$ , and current medication,  $\chi^2(1, N = 84) = 19.77, p < .001$ . Results revealed no significant effect for condition for comorbid diagnosis,  $\chi^2(1, N = 84) = 0.34, p = .56$ , past treatment,  $\chi^2(1, N = 84) = 1.94, p = .16$ , or current medication,  $\chi^2(1, N = 84) = 1.24, p = .27$ . These analyses indicate that, as expected, differences on the clinical characteristics were observed for groups but not conditions.

### *Descriptive Questionnaires*

A 2 (group) by 2 (condition) MANOVA was conducted on the SIAS, SPS, and BDI scores. Results revealed a significant multivariate effect for group,  $F(3, 78) = 85.41, p < .001$ . The condition,  $F(3, 78) = 0.37, p = .78$ , and group by condition interaction effects,  $F(3, 78) = 0.86, p = .47$ , were not significant. Follow-up univariate analyses revealed that participants with generalized social phobia (GSP)



had significantly higher scores than controls on the SIAS,  $F(1, 80) = 236.85, p < .001$ , the SPS,  $F(1, 80) = 126.14, p < .001$ , and the BDI,  $F(1, 80) = 74.86, p < .001$ .

To control for the potential effects of depression on the results, all of the analyses were repeated using BDI scores as the covariate. The results indicated that controlling depression did not affect any of the results. Therefore, the original analyses are reported below.

### *Personnel Behaviour*

A 2 (group) by 2 (condition) MANOVA was conducted on the experimenter ratings of confederate behaviour. Results revealed no significant multivariate effects for the group,  $F(3, 78) = 0.07, p = .14$ , condition,  $F(3, 78) = 0.02, p = .69$ , or the group by condition interaction,  $F(3, 78) = 0.03, p = .52$ . Similarly, a 2 (group) by 2 (condition) MANOVA was conducted on the confederate ratings of experimenter behaviour during the interactions. There were no significant multivariate effects for group,  $F(2, 79) = 0.06, p = .11$ , condition,  $F(2, 79) = 0.02, p = .39$ , or group by condition interaction,  $F(2, 79) = 0.07, p = .08$ . This indicated that confederates and experimenters maintained consistent performance across groups and conditions.

### *Manipulation Check and Dependent Measures*

Means and standard deviations for the manipulation check and all dependent measures can be seen in Table 6.

#### *Manipulation Check*

A 2 (group) by 2 (condition) analysis of variance (ANOVA) was conducted on the AQ and revealed that participants in the positive condition appraised the situation more positively (i.e., expected a more positive outcome) than did those in

Table 6

Means and Standard Deviations for Manipulation Check and Dependent Variables

Variable	Social phobia		Control	
	Positive	Negative	Positive	Negative
Manipulation Check				
AQ	17.05 (4.34)	14.43 (3.78)	21.10 (1.97)	18.24 (2.49)
Cognitive Variables				
FAQ –self	3.02 (.84)	3.10 (.76)	1.59 (.45)	1.59 (.60)
FAQ –other	2.75 (.65)	2.52 (.44)	2.69 (.60)	2.53 (.62)
Recall	9.23 (1.66)	9.92 (2.06)	10.14 (2.20)	9.81 (2.27)
Emotion Variables				
AT 1	38.57 (23.57)	38.33 (27.49)	6.52 (6.46)	5.95 (7.35)
AT 2	64.29 (20.20)	59.19 (23.73)	15.71 (12.38)	20.72 (19.34)
Anxiety (self rating)	19.31 (5.30)	19.24 (5.11)	9.34 (3.83)	8.59 (2.89)
Anxiety (conf. rating)	19.55 (5.13)	18.56 (6.21)	8.89 (4.04)	10.89 (4.50)
PANAS – negative	17.14 (6.08)	17.26 (4.79)	10.44 (.61)	11.72 (2.57)
PANAS – positive	23.05 (6.57)	22.55 (7.57)	31.60 (7.09)	31.33 (5.59)
Self-Disclosure Variables				
Participant rating	6.71 (2.61)	7.95 (3.04)	10.38 (2.52)	9.15 (2.17)
Confederate rating	7.81 (3.06)	8.00 (2.57)	11.38 (2.11)	9.29 (2.90)

*Note.* Standard deviations in parentheses. AQ = Appraisal Questionnaire; FAQ = Focus of Attention Questionnaire; AT = Anxiety Thermometer; PANAS = Positive and Negative Affect Scale.

the negative condition,  $F(1, 80) = 14.58, p < .001$ . Results also demonstrated that participants in the control group generally displayed a more positive appraisal of the situation (i.e., expected a more positive outcome) than did the participants in the social phobia group,  $F(1, 80) = 30.01, p < .001$ . The group by condition interaction effect was not significant,  $F(1, 80) = .03, p = .87$ . This indicates that different appraisals were manipulated successfully in both groups, although the control group appraised the situation more positively.

### *Cognition*

A 2 (group) by 2 (condition) MANOVA was conducted on the focus of attention, and structured recall measures. Results revealed a significant multivariate group effect,  $F(3, 78) = 31.77, p < .001$ , but no significant multivariate condition,  $F(3, 78) = .79, p = .50$ , or group by condition interaction effects,  $F(3, 78) = .49, p = .69$ . Follow-up univariate analyses indicated that GSP participants were significantly more self-focused than controls,  $F(1, 80) = 97.47, p < .001$ . There was no significant difference for other-focused attention,  $F(1, 80) = 0.05, p = .82$  or recall,  $F(1, 80) = 0.78, p = .38$ .

### *Affect*

A 2 (group) by 2 (condition) MANOVA was conducted on the total anxiety score, and the two PANAS scales. Results revealed a significant group multivariate effect,  $F(3, 77) = 16.68, p < .001$ . No significant multivariate effects emerged for condition,  $F(3, 77) = 0.49, p = .69$ , or group by condition interaction,  $F(3, 77) = 0.26, p = .85$ . Follow-up univariate analyses demonstrated that GSP participants reported more anxiety,  $F(1, 79) = 42.16, p < .001$ , more negative emotion,  $F(1, 79) = 13.55,$

$p < .001$ , and less positive emotion,  $F(1, 79) = 18.62$ ,  $p < .001$ , than control participants.

A 2 (group) by 2 (condition) ANOVA was conducted on confederate ratings of participant anxiety. Results revealed that confederates rated GSP participants as significantly more anxious,  $F(1, 80) = 69.60$ ,  $p < .001$ , than control participants. The condition,  $F(1, 80) = 0.21$ ,  $p = .65$ , and group by condition interaction effects,  $F(1, 80) = 1.85$ ,  $p = .18$ , were not significant.

#### *Self-disclosure*

A 2 (group) by 2 (condition) ANOVA was conducted on participant self-disclosure. The analysis revealed that GSP participants reported less intimate disclosures than controls,  $F(1, 80) = 18.29$ ,  $p < .001$ . This effect was moderated by a group by condition interaction,  $F(1, 80) = 4.74$ ,  $p = .03$  (see Figure 2). Follow-up simple effects analyses split by group revealed that there were no significant differences between disclosure in the positive and negative conditions for non-phobic control,  $F(1, 80) = 2.36$ ,  $p > .05$ , or phobic participants,  $F(1, 80) = 2.37$ ,  $p > .05$ . Follow-up simple effects analyses split by condition revealed no significant group difference in the negative condition,  $F(1, 80) = 2.21$ ,  $p > .05$ . In the positive condition, the non-phobic control participants disclosed significantly more intimately than the GSP participants,  $F(1, 80) = 20.82$ ,  $p < .001$ . The overall condition effect was not significant,  $F(1, 80) = 0$ ,  $p = 1.00$ .

When level of depression was controlled by covarying BDI scores out of the analyses, the results did not significantly change. The group,  $F(1, 79) = 8.09$ ,  $p = .01$ , and group by condition,  $F(1, 79) = 4.54$ ,  $p = .04$ , effects remained significant,

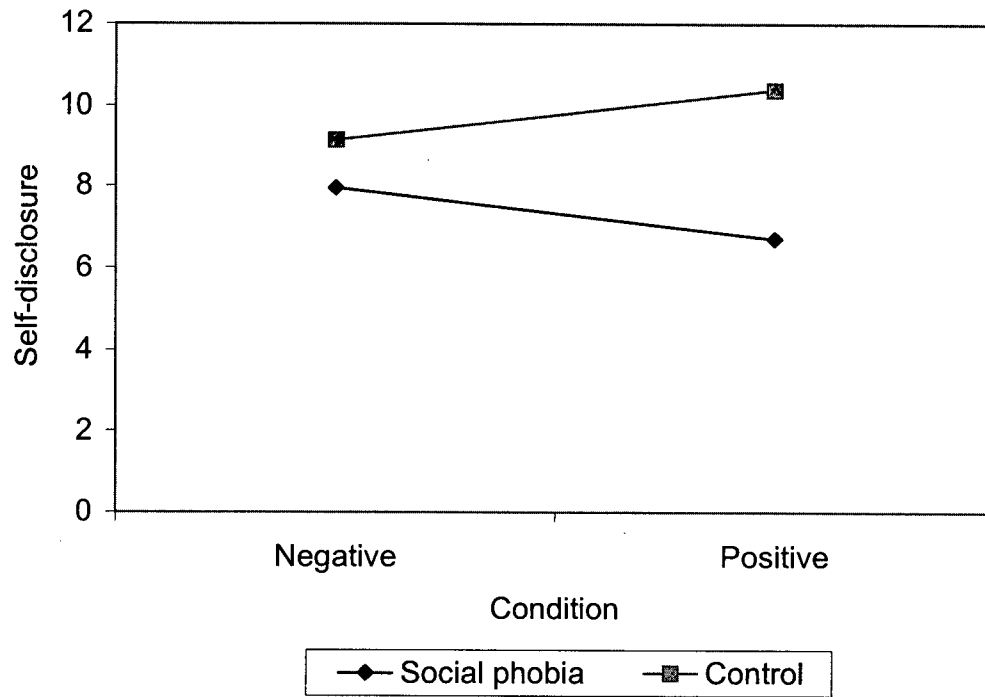
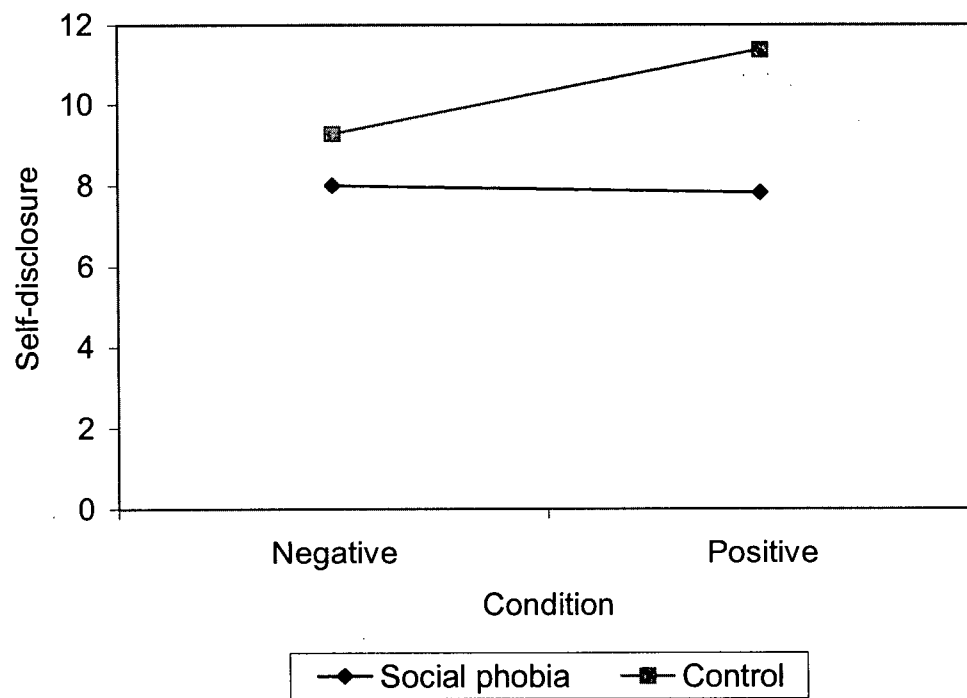


Figure 2. Participant ratings of self-disclosure by condition for social phobia and control groups.

and the condition effect remained not significant,  $F(1, 79) = 0, p = .99$ . This suggests that depressive symptoms were not responsible for these results.

A 2 (group) by 2 (condition) ANOVA was conducted on confederate ratings of participant self-disclosure. Results revealed that confederates rated GSP participants as disclosing less intimately than controls,  $F(1, 80) = 17.19, p < .001$ . This effect was moderated by a significant group by condition interaction,  $F(1, 80) = 3.81, p = .05$  (see Figure 3). Follow-up simple effects analyses split by group revealed that non-phobic control participants disclosed significantly more intimately in the positive than the negative condition,  $F(1, 80) = 6.40, p < .05$ , but there were no significant differences between the conditions for the phobic participants,  $F(1, 80) = .05, p > .05$ . Follow-up simple effects analyses split by condition revealed that in the negative condition there was no significant group difference,  $F(1, 80) = 2.41, p > .05$ . In the positive condition, the non-phobic control participants disclosed significantly more intimately than the participants with social phobia,  $F(1, 80) = 18.58, p < .001$ . The overall condition effect was not significant,  $F(1, 80) = 2.64, p = .11$ .

When level of depression was controlled by covarying BDI scores out of the analyses, the results did not significantly change. The group,  $F(1, 79) = 12.22, p = .001$ , and group by condition,  $F(1, 79) = 4.01, p = .05$ , effects remained significant, and the condition effect remained not significant,  $F(1, 79) = 2.54, p = .12$ . This suggests that depressive symptoms were not responsible for these results.



*Figure 3.* Confederate ratings of self-disclosure by condition for social phobia and control groups.

### *Temporal Sequence*

In order to test the predictions that followed from the Clark (2001; Clark & Wells, 1995) model and to compare them to the predictions made by the Buss (1980) and Duval and Wicklund (1972) models, a series of analyses based on the general linear model were conducted on the data collected from the participants with social phobia. First, to investigate the prediction of the Clark (2001; Clark & Wells, 1995) model that appraisal predicted anxiety, self-focused attention, and safety behaviours, a multivariate general linear model analysis was conducted on anxiety at time 2, self-focused attention and self-disclosure using cognitive appraisal, anxiety at time one, and their interaction as covariates. Results revealed no significant multivariate effects for cognitive appraisal,  $F(3,36) = .98$ ,  $p = .42$ , anxiety at time one,  $F(3,36) = 1.79$ ,  $p = .17$ , or the interaction,  $F(3,36) = 1.35$ ,  $p = .27$ .

In order to investigate the prediction that safety behaviours and anxiety predict self-focused attention, a univariate general linear model analysis was conducted on self-focused attention using anxiety at time two, self-disclosure, and their interaction as covariates. Results revealed no significant effects for anxiety at time two,  $F(1,38) = 3.08$ ,  $p = .09$ , self-disclosure,  $F(1,38) = 1.14$ ,  $p = .29$ , or the interaction,  $F(1,38) = 1.06$ ,  $p = .31$ .

In order to test the prediction by Buss (1980) and Duval and Wicklund (1972) that self-focused attention predicts in-situation anxiety, which then predicts self-disclosure, two univariate general linear model analyses were conducted, one to address each step in the sequence. First, in-situation anxiety was regressed onto self-focused attention. The analysis indicated that there was a significant effect for



self-focused attention,  $F(1,40) = 5.29, p=.03$ . Second, self-disclosure was regressed onto anxiety at time 2. Results revealed a significant effect for in-situation anxiety,  $F(1,40) = 13.40, p=.001$ .

In order to test the second prediction, i.e., that anticipatory anxiety and self-focused attention interact to predict further anxiety, a univariate general linear model analysis was conducted on anxiety at time 2 using anxiety at time one, self-focused attention, and the interaction as covariates. Results revealed a trend toward a significant interaction effect,  $F(1,38) = 3.87, p=.057$ . In order to further investigate this interaction, a median split was conducted on self-focused attention. Results revealed that the correlation between anticipatory anxiety and in-situation anxiety was significant when participants were high in self-focused attention,  $r = .70, p<.001$ , but it was not significant when participants were low on self-focused attention,  $r = .12, p=.60$ . The results were not significant for anxiety at time 1,  $F(1,38) = 1.73, p=.20$ , nor for self-focused attention,  $F(1,38) = .60, p=.44$ , alone.

## Discussion

### Overview

Consistent with the Clark-Wells (1995; Clark, 2001) model of social phobia, GSP's and controls differed on most components of the anxiety program. As predicted, participants' social appraisals did exert some influence on their responses to the situation. Interestingly, the largest discrepancy between GSP's and controls occurred for self-disclosure in the positive social appraisal condition. The results also provided some clarification about the temporal sequence among the components of the anxiety program. I will now discuss the results as they relate to

the specific hypotheses.

*Social Phobia and the Anxiety Program*

Clark and Wells (1995; Clark, 2001) proposed that social phobia is characterized by a series of cognitive-behavioural processes that create and maintain the symptoms of the disorder. These results are consistent with this model. As predicted, GSP participants displayed more self-focused attention, experienced more negative affect, and were less self-disclosive than non-phobic controls. These results are consistent with earlier studies demonstrating that GSP's are characterized by self-focused attention (Hope, Rapee, Heimberg, & Dombeck, 1990; Mellings & Alden, 2000; Woody, 1996; Woody & Rodriguez, 2000).

As speculated and consistent with earlier studies, self-disclosure appeared to function like a safety behaviour (Alden & Bieling, 1998). Upon anticipation of the social situation, GSP participants apparently protected themselves from feared negative evaluation by disclosing less intimate details about their lives. These findings are consistent with earlier studies that find differences between socially anxious and non-anxious groups on self-disclosure (e.g. Bruch, et al., 1989; Cheek & Buss, 1981; Leary, Knight, & Johnson, 1987; Meleshko & Alden, 1993). To my knowledge, however, this is the first study to examine self-disclosure in a clinical sample of social phobic patients. Given that self-disclosure is a key feature of relationship development, it is easy to see how non-normative disclosure could negatively impact the formation of friendships (Cohen, et al., 1986; Daher, & Banikiotes, 1976; Laurenceau, et al., 1998; Planalp, & Benson, 1992; Walker, & Wright, 1976). If people with social phobia consistently disclose less intimately than

others, it is less likely that they will develop satisfying interpersonal relationships and this may lead to a lonely and solitary existence (Jones, 1991; Solano, Batten, & Parish, 1982; Stokes, 1985; Worthy, et al., 1969).

There were two components of the model that did not conform to predictions. The first was the absence of between-group differences on other-focused attention. Two studies in the literature have reported similar findings for both students with social anxiety and patients with social phobia (Mellings & Alden, 2000; Woody & Rodriguez, 2000). Consistent with these works, this study suggests that people with social phobia focus more on themselves during interactions than non-phobic participants, but they do not focus less on others. My interpretation of the model is that attention is diverted to self-related information at the expense of other-related information (see Alden & Mellings, 2001). However, in this study, the non-phobic participants displayed a relatively equal attentional focus between self and other, whereas patients with social phobia focused more on themselves, and equally on others. Consistent with this finding, Woody (1996) demonstrated that the self-focused attention and other-focused attention subscales were not correlated, and she argued that self-focus does not preclude focusing attention on others. In support of this notion, Woody and her colleagues (1997) found that over the course of treatment for social phobia, self-focus decreased for patients, but other-focus remained stable.

A possible explanation for these results is that the measurement of other-focused attention is flawed. Ideally, a measure of attentional focus should occur online. The FAQ is not an online measure of attention. Instead, the FAQ relies on a

global retrospective report in that it is based on what a person can recall about their focus of attention in a past conversation. Furthermore, the FAQ was constructed with rationally derived items. Although results of a factor analysis in the original study revealed two distinct factors with strong loadings for all items, no attempt has been made to replicate these results. A replication of the original psychometric analyses would be advisable given that the self versus other distinction is not immediately obvious for all items, and some studies have found low internal consistency for the other-focus scale. Woody's initial report found a Cronbach's alpha of .72 for the other-focus scale (Woody, et al., 1997). In contrast, Woody (1996) found an alpha of .50, and Mellings and Alden (2000) found an alpha of .49 for the other-focus scale. Woody (1996) suggested that the difference between her two studies was the result of fewer participants. However, the Mellings and Alden (2000) study tested 116 participants, compared to 64 participants in the original study, and as noted, the internal consistency of the other-focus scale was low. In the current study, Cronbach's alpha for the other-focus scale was .44, and subsequent investigation revealed that removing items did not increase the internal consistency. Thus, the scale appears to be thematically complex.

Another explanation for the absence of differences on the other-focus scale is that the FAQ may reflect more than attentional focus. For example, the scales may also reflect the salience, or weight, carried by self versus other information. Thus, although people with and without social phobia focus equally on others, and take in equal amounts of information about them, other-related information may carry less weight in the social responses of people with GSP. In support of this, Alden and

Mellings (2001) asked people with and without GSP to rate the extent to which they used various types of information when making judgments about a social task. They found that people with GSP assigned larger weights to anxiety-related information than did controls. They also tended to weigh subjective anxiety more heavily than partner-related information (see also Clark, 2001; Rapee & Lim, 1992). If the crucial factor is how information is weighed, a modification of the model is necessary to explicate a distinction between information that is encoded into memory and information that is used in forming social judgments. Further studies are needed to examine the psychometric characteristics of the FAQ other-focus scale and to determine exactly what the FAQ measures.

The second component that did not conform to the predicted pattern was recall. I had predicted that GSP participants would recall less information about their partner than non-phobic controls, but the results failed to support this postulation. These results are in contrast to studies that have found this type of recall deficit (e.g. Daly, et al., 1989; Hope, Heimberg, & Klein, 1990; Mellings & Alden, 2000).

There are several possible reasons why the results of the recall measure did not conform to my predictions. One possibility is that the items on the recall questionnaire were overly simple, i.e., general aspects of the confederate's disclosure, which made it easy for participants to remember the information. However, if this were the case, one would have expected a ceiling effect for the recall scores, and this did not occur. In fact, there was a large range of scores on the recall measure for both GSP and non-phobic control participants. Thus, this

seems an unlikely explanation for the results.

A second explanation pertains to low statistical power due to limited sample size. An examination of the means on the recall measure revealed that the mean for GSP participants was lower than for non-phobic controls, but not different enough to reach significance. Power calculations revealed that the number of participants in each group provided sufficient power to detect a medium to large effect. Since the aim of the study was to identify only meaningfully large effects, the power appears to have been sufficient.

A more likely explanation arises from the nature of the social task. Although the use of the socially relevant self-disclosure task was an innovative aspect of this research, the classic self-disclosure paradigm used here structures the situation so that participants are not allowed to speak while their partner is speaking. This procedure may have provided participants the opportunity to attend to and store what their partner was saying. Since participants were focused on one task at a time (i.e. listening or talking), there were likely fewer demands on attention and working memory than would result from a first-meeting conversation in which they would have to think on their feet and generate immediate responses. Attention and memory resource allocation would be expected to be different in a reciprocal self-disclosure task than in an unstructured conversation because of the different amount of information bombarding working memory in each task. It is possible that recall deficits only occur when the working memory of people with social phobia is under cognitive overload, or in other words when they are in a situation in which they must attend, encode, store, and retrieve information from multiple sources at the

same time.

Another aspect of the task that may have affected the recall results is the deliberately intimate content of the confederate's disclosure. The confederate's comments may have been more engrossing and interesting than the topics typically discussed in a first meeting interaction. This possibility underscores the need to examine the cognitive model in a variety of social tasks.

All in all, the most likely explanation appears to be that the nature of the task was such that participants had few difficulties attending to and storing information about their partner's conversation. Thus, the recall deficits found in earlier studies were not observed here. To test this hypothesis, one could examine self-disclosure in a more natural context without the structure and deliberately intimate conversational content used here.

### *Social Appraisal*

One contribution of this study was its attempt to manipulate social appraisals. My goals in doing this were to determine whether the appraisals of people with GSP are malleable, and if so, to examine the effect of positive versus negative appraisals on the anxiety program. The first of these two goals was accomplished. The manipulation did result in positive and negative appraisals of the confederates in both groups. In terms of effects, the only difference between the two conditions was that there was a significant difference between the intimacy of the self-disclosure of GSP and non-phobic control participants in the positive social appraisal condition.

GSP participants disclosed significantly less intimately in the positive condition than did the non-phobic control participants, but there was no significant

difference between the groups in the negative appraisal condition. Observations of the graphical representation of the interaction between appraisal condition and self-disclosure for both groups revealed that non-phobic control participants appeared to disclose more intimately in the positive appraisal condition according to ratings made by themselves and the confederate. The self-disclosure of participants with social phobia was unaffected by the appraisal manipulation when rated by the confederates. However, GSP participants reported that they felt that they disclosed less intimately in the positive appraisal condition. In fact, GSP participants disclosed less intimately than non-phobic control participants in both the negative and the positive conditions, but the difference was significant only for the positive condition.

These results suggest that there is a difference between the intimacy of self-disclosures for people who have social phobia and those who do not, however, the difference was only statistically significant for their response to positive information. It appears as though positive information does not increase the intimacy of self-disclosure for participants with social phobia in the same way that it does for non-phobic controls.

If people with social phobia are more likely to experience uncomfortable sensations of anxiety and they are more likely to perceive social danger in situations compared to non-phobic individuals, as would be suggested by the Clark-Wells (1995; Clark, 2001) model, then it would follow that they would attempt to protect themselves with safety behaviours. In this study, self-disclosure was considered to be a safety behaviour. This leads to a reasonable expectation that people with social phobia would not disclose as intimately as non-phobic controls and this was



what was found in the current study. It appears from these results that although non-phobic control participants were able to open up and become more intimate when they appraised the situation positively, people with social phobia continued to protect themselves even when they were provided with a positive expectation about the situation.

Consistent with the findings of the current study, past studies have found evidence that indicates that GSP patients display non-normative responses to positive and ambiguous events. For example, they lack the positive inferential bias found in non-phobic individuals (Constans, Penn, Ihen, & Hope, 1999; Hirsch & Matthews, 2000), and interpret positive events in an anxiety-provoking manner (Wallace & Alden, 1995; Wallace & Alden, 1997). Furthermore, studies also suggest that the provision of positive information may not be the most effective way to reduce social anxiety (Alden, Mellings, & Laposa, 2001). Overall, the results of the current study support findings that suggest that unlike non-phobic controls, people with social phobia may not experience objectively positive information in a positive way. This is a sad state of affairs because if people with social phobia cannot disclose to people they perceive to be friendly, the likelihood that they will be able to begin or maintain relationships is decreased. Furthermore, when faced with a potentially positive person, their use of safety behaviours may lead to the very reactions from others that they are trying to prevent. In this way, their negative predictions would be confirmed by both positive and negative social events. It is important to fully understand the effects of positive events and information on people with social phobia if we wish to help them overcome this condition. Further

studies are required to examine how these people process positive social information.

It is interesting that the manipulation only affected the self-disclosure variable. One reason why the appraisal manipulation did not affect many of the variables in the study may be that the anxiety program was already activated prior to the presentation of the manipulation instructions. When participants were telephoned about the study, they were informed that they would be asked to interact with an assistant during the study. Perhaps this knowledge led to the activation of the anxiety program prior to entering the situation. As a result, the manipulation did not alter the anxiety program because it had already been activated by the telephone call.

A reason why the appraisal manipulation may not have led to changes in affect in particular is that the body-state information (i.e. physical symptoms of anxiety) of GSP participants may have provided a stronger message than the appraisal manipulation. Wells and Papageorgiou (2001) found that for people with social phobia, bogus information that their pulse rate had increased led to increased anxiety and negative beliefs, whereas bogus information about a decreased pulse rate led to opposite effects. Extending these ideas to the present study, it may be that social anxiety is modulated by body-state information, and this provides another explanation for the results of this study. Although the manipulation check demonstrated that appraisals were altered as planned, perhaps once in the situation, the physical sensations of anxiety provided a stronger message for these patients and this led to continued self-protection even in the face of positive

expectations.

### *Temporal Sequence*

Another contribution of this study was to explore several aspects of the temporal sequence of the cognitive model. My goals in doing this were to investigate (1) whether perceived social danger (appraisal) was responsible for initiating the anxiety program; (2) the role of self-focused attention in the sequence of events; and (3) whether the temporal sequence was more consistent with the predictions made by Clark and Wells (1995; Clark, 2001) or Duval and Wicklund (1972) and Buss (1980).

My reading of the Clark-Wells (1995; Clark, 2001) model indicates that the sequence begins with perceived social danger, which leads to self-focused attention, in-situation anxiety, and safety behaviours (i.e. less self-disclosure). In-situation anxiety and safety behaviours in turn lead to self-focused attention. Overall, the results of this study did not support this temporal sequence.

First, perceived social danger did not lead to any of the variables as predicted by the Clark and Wells (1995; Clark, 2001) model. Perceived social danger did not appear to set the anxiety program into motion. In other words, participants with social phobia demonstrated that it is possible to appraise a social situation positively, but still be anxious. One must consider that a complicating factor in measuring cognitive appraisal may have been the manipulation conditions. Social appraisal was deliberately manipulated in the study and this may have confounded the natural cognitive appraisals of patients with social phobia. Although controlling for manipulation condition did not significantly change any of the results, analyses

involving this cognitive measure of appraisal must be considered with caution. In fact, a more effective proxy measure of danger appraisal may be the measure of anticipatory anxiety. This measure may be less tainted by the manipulation and may reflect the participants' true appraisals of the situation. In order to control for this possible confounding effect, cognitive appraisal and anticipatory anxiety were both considered components of perceived social danger. However, neither of these two components, separately nor together, related to the other variables of the anxiety program in the manner predicted by Clark and Wells (1995; Clark, 2001).

One conclusion that could be drawn from these data is that perceived social danger is not the component that initiates the anxiety program. Another possible explanation is that the measure of perceived social danger used in this study did not tap the exact nature of the concept as conceptualized by Clark and Wells (1995; Clark, 2001), who do not provide a specific operational definition of perceived social danger. This suggests that more specificity is needed. Further studies are required in which cognitive appraisal is measured in multiple ways before a firm claim can be made that appraisal does not play a role in the anxiety program.

Second, inconsistent with the predictions of the Clark-Wells (1995; Clark, 2001) model, in-situation anxiety and safety behaviours did not significantly predict self-focused attention. This suggests that being anxious and protecting oneself does not necessarily impact one's level of self-focus. One possible explanation for this finding might be that the directional sequence suggested by Clark and Wells (1995; Clark, 2001) is not accurate and that self-focused attention occurs at a different time point than suggested by their model.

In general, the results of this study are more consistent with the predictions derived from the self-awareness theories of Duval and Wicklund (1972) and Buss (1980). These theories predicted that self-focused attention preceded social discomfort and safety behaviours. These results suggested that being more self-focused was associated with increased anxiety, and that the more anxiety a person experienced, the less intimate were their self-disclosures. In other words, focusing on oneself makes a person more anxious and when they are anxious, they protect themselves more.

The results of this study are also generally consistent with the second prediction made by these theorists. Buss (1980) predicted that for people who are socially anxious, public self-focused attention will increase the salience of anxiety. In this study, there was a trend for an interaction between anticipatory anxiety and self-focused attention to predict in-situation anxiety. In other words, self-focused attention appeared to moderate the relationship between anxiety prior to and during the interaction. Specifically, initial anxiety level prior to the interaction predicted anxiety during the interaction only for those with high self-focused attention. This finding supports the notion of self-focused attention as an independent process and disputes the hypothesis that self-focused attention is merely anxiety by another name. Interestingly, the combination of anticipatory anxiety and self-focused attention maintained in-situation anxiety even though the confederate's disclosure was intimate, which should induce positive emotions.

Overall, these results support the idea that anxious people who focus on themselves remain anxious. They then disclose less intimate information about

themselves in a conversation, perhaps as a means to increase their perceived safety. This points to a central role for self-focused attention in models of social phobia, although that role differs from what Clark's (2001; Clark & Wells, 1995) model implies.

In this study, not all people with social phobia became self-focused in the social task. One reason for this might have been that this type of social situation did not evoke anxiety in them. It is well known that people with social phobia are heterogeneous in terms of the situations they fear. In contrast, those who did become self-focused either didn't take in or didn't believe the friendly external information. Overall, these results point to the role of self-focused attention as maintaining or increasing anxiety, but not increasing safety behaviours directly. These results suggest that people use safety behaviours because they are anxious, not because they are self-focused.

The results are consistent with previous studies that found an association between heightened self-focused attention and anxiety (Woody, 1996; Woody & Rodriguez, 2000). In a related vein, researchers have also demonstrated that public self-awareness was correlated with anxiety (e.g. Fenigstein, Scheier, & Buss, 1975; Hope, & Heimberg, 1988). The results are also consistent with other studies that examined the relationship between self-focused attention and behaviour (Woody, 1996; Woody & Rodriguez, 2000). Specifically, these researchers found that self-focused attention led to anxiety, but not to a change in social performance in patients with social phobia. Considering the results of this study in the context of previous research it appears as though self-focused attention does not directly

affect behaviour, but it does act as a moderator of anxiety level, which then affects behaviour.

To the best of my knowledge, this is the first investigation to consider the temporal sequence of the Clark and Wells (1995; Clark, 2001) cognitive model. The exploratory results of this study underline the importance of using specific tests of models to understand how the components fit together. Further research is required to confirm the moderating relationship of self-focused attention on anxiety and its subsequent effect on behaviour in people with social phobia. These studies will need to ensure that they use tasks that the participants find anxiety-provoking and that the tasks create self-focused attention.

#### *Summary and Future Directions*

This study contributed to the literature by being one of the few works that examined the effects of social appraisal on the way people with social phobia respond to social interactions. Another novel contribution of this study involved the investigation of the temporal sequence in the Clark and Wells (1995; Clark, 2001) model. The use of patients with social phobia instead of students with social anxiety was another strength. Finally, this study contributed to the literature by assessing a number of features of the Clark and Wells (1995; Clark, 2001) model in the context of a novel social situation.

There were also several limitations to the study. First, the social interaction task was completed in a laboratory setting. Although this allowed control over some variables in this complex situation, such as partner behaviour, any task completed in a laboratory is analogue in nature. Participants noticed that this setting was unlike

the real world, and as a result several participants reported different anxiety levels compared to outside the laboratory. Some participants reported heightened anxiety, whereas others reported decreased anxiety in the laboratory setting. This type of laboratory task may have also affected the use of natural avoidance strategies because it was clear that the expectation was to engage in the conversation and not avoid it. This may limit generalization of these results to the real-world. However, people with social phobia often enter anxiety-provoking situations and use safety behaviours to subtly avoid the situation. One type of this subtle avoidance was measured in this study. As previously discussed, another aspect of the study that made the interaction unlike a natural conversation was the structure of the self-disclosure task. The knowledge that the conversation was time limited may have altered participant reactions to the stimulus. A further limitation discussed earlier was that the recall measure may not have been able to capture fine distinctions between control participants and GSP patients.

One of the most useful and important implications of this study was its contribution to adding specificity to the role of self-focused attention in cognitive models. Since self-focused attention is found in many anxiety disorders, it must play a unique role in social phobia to warrant an important place in the model. This study helped to establish this role as a moderator of anxiety that occurred prior to several other components of the model. Another useful implication of this investigation was the finding that attempting to create positive anticipatory appraisals was not effective in altering behaviour in a population of patients with social phobia. This finding will help direct future research toward more useful



avenues of investigation. This study also provided confirmation of many aspects of the Clark-Wells (1995; Clark, 2001) cognitive model as well as identification of avenues that require further investigation, such as focus of attention, appraisal, and response of people with social phobia to positive events. As more studies investigate aspects of the cognitive model, it can be refined and will more accurately reflect the processing that occurs in social phobia.

Future directions for research include work on the attentional focus aspect of the model. Understanding the role of self-focused attention and the relationship between all of the other components will be useful to refine the cognitive model and further understand social phobia. Further investigations into the sequence of events that unfold when people with social phobia enter an anxiety-provoking social situation would be helpful to add specificity to the roles of each element of the anxiety program. Increasing our knowledge about the recall deficits in people with social phobia would also be beneficial. Future work in this area will need to develop fine-tuned and sophisticated ways of measuring recall in the context of complex interactions. For example, it would be informative to investigate differences in recall for items presented at the beginning versus the end of a confederate's disclosure. There may be recall deficits for information presented immediately prior to the patient's turn to speak if anxiety and self-focus increase at that moment.

There is also a need for studies to incorporate more complex social tasks and behaviours into their methods. Since social interactions are complex processes, there may be many variables that impact affect and cognition that cannot be recreated through simpler tasks. This also points to the need to generalize results

to real world interactions. Although social interactions conducted in the laboratory are useful demonstrations, it would be better to find an accurate way to measure affect and cognition in a more natural setting, since this is where changes are desired.

Future research should also attempt to understand more about the effect of appraisals on affect and cognition in people with social phobia. Further definition of what makes up appraisal would be beneficial. The ways in which these individuals interpret positive social events needs further study so that we can develop useful feedback techniques. This type of research is currently underway in our laboratory. With further understanding in these areas, the hope is that we will be able to design techniques that will help to shift the anxiety program and decrease social phobia.

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Appendix A

*Newspaper Advertisements*

1. Social Anxiety? Psychological treatment study at UBC for people who are having significant difficulties with social anxiety. For information call Tanna Mellings at 822-5047.

2. Paid Participation

We are looking for people without social fears to serve as a comparison group in a study about social interactions. If you do not have any significant difficulties with anxiety, you may be eligible. We are able to offer a small payment as a token of appreciation. Please Call Tanna at the UBC Interpersonal Lab 822-5047.

## Appendix B

*Experimenter Protocol*

"Hi there. Are you looking for the experiment? How are you doing today? I'm ... and I'm running the study today. Did you have any trouble finding us? Come in and have a seat in the chair with the clipboard on it. First, we'll start with a consent form. Basically, this form says that the information you provide today is confidential, you will only be identified by a number, and everything is kept in locked filing cabinets. Your participation is completely voluntary. If at any time you wish to withdraw from the study you are free to do so. Read this and if you have any questions, feel free to ask. Once you've signed it, we'll get started."

"Before we get started, I just have a few questionnaires for you to complete so that we know a bit about you and how you are feeling today."

Ok, now let's get started and I'll tell you about the interaction. Read appropriate manipulation script.

"Before you have the conversation, I just need you to complete one more questionnaire."

"Thank you very much for doing that. In a moment, I will introduce you to our assistant and you will have a conversation. I'll be right back."

"(participant) this is our assistant (confederate). (confederate), this is (participant). In this task, I would like you to get to know each other, just as if you met at work or a gathering. We need to structure the task a bit so I'd like you to take turns talking. When one person is talking, the other person will listen and then you will switch roles. When it is your turn to talk, try to talk for at least a couple of minutes. I'd like you to talk about something that has been on your mind this week. Please don't talk about this study... (confederate), why don't you talk first to get us started. I'm going to go behind the one way mirror so I'm not disturbing you here. When you (participant) are finished talking, (confederate) you can just knock on the window to let me know that you are done in here and I will return. I'll knock to let you know when to begin. Please don't start the interaction until you hear me knock. So don't say anything before the knock."

"Ok, that's the end of the conversation portion. Why don't you go outside (confederate). Now, (to participant) I have several questionnaires for you to complete. These questionnaires are completely confidential. They are only coded with a number. Our assistant will not see your responses so you can feel free to put down what you really think and feel. If you have any questions, feel free to ask me."

"I just have a few more questions for you then I'll tell you more about the study."

Debrief & pay participant if appropriate.



## Appendix C

*Personnel Measures*

Confederate Behaviour (rated by experimenter and observer)

1. How warm or friendly did the confederate seem toward the participant (both when telling her story and listening to the participant's story)?

1	2	3	4	5	6	7
not at all			neutral		very	warm
warm						

2. How **intimate** were the confederate's disclosures?

1	2	3	4	5	6	7
very			neutral			very
<b>nonintimate</b>						intimate

3. To what extent could the content of the confederate's disclosures be described as POSITIVE OR NEGATIVE?

1	2	3	4	5	6	7
very			neutral			very
negative						positive

## Experimenter Behaviour (rated by observer)

1. How warm or friendly did the experimenter seem toward the participant?

1	2	3	4	5	6	7
not at all			neutral		very	warm
warm						

2. How clearly did the experimenter explain the instructions?

1	2	3	4	5	6	7
not at all						very
clear						clear

## Confederate Script Check 1

Script 1 Ill sister

I always wonder exactly what I should talk about (laugh, pause).  
Well, (short pause) there's always the weather. (pause) When I got up this morning, I was so happy to see that it was sunny/raining. (smile) I really/actually enjoy this kind of weather.  
Let's see, (pause, eyebrow lift) what else has been going on?  
Well, (pause) I've been kind of busy the past few weeks actually.  
My aunt is visiting from England. (pause)  
She's never seen Vancouver, so we have been doing a lot of sightseeing and stuff. It's been kind of fun to do some of the tourist things that you never actually do when you live here, like Stanley Park and Science World. (pause)  
My aunt really likes Vancouver.  
She's always inviting me to stay with her if I ever get to England.  
I would love to go there one day, (nod) but hopefully when I go nobody will get sick. (facial shrug, pause, look thoughtful)  
It kind of changes the focus of your trip. (scrunchy face)  
My aunt has been planning this visit for a long time but just before she arrived, my sister got pretty sick. (frown and keep a down face until "my sister and I are close")  
She has been suffering from pneumonia for several weeks now.  
We thought it was just a cold at first and didn't think much of it, but then it got so bad that she ended up in the hospital. (concerned look)  
For a while, we were really concerned that she might not make it.  
So, I've spent a lot of time lately taking care of her and worrying about her. (pause)  
I'm really close to my sister.  
It was pretty scary to think of her in such bad shape. (scrunchy face)  
My mom and I want to make sure that we do everything we can to get her back on her feet as quickly as possible. (pause)  
Fortunately, (smile) she's doing much better already.  
She's home from the hospital and can even go out with us sometimes but she still needs to rest a lot. (pause, look thoughtful)  
Things like this really make you realize how much we take life for granted.  
It's so easy to forget how precious life is and that it can be taken from you unexpectedly.  
I guess one positive outcome from this experience is that this scare brought my family a lot closer together. (smile, look up, pause)  
Anyway, (pause, shrug) that's what's on my mind.  
What has been on your mind this week?

## Confederate Script Check 2

Script 2 Separation from partner

I always wonder exactly what I should talk about (laugh, pause)  
Well, (short pause) there's always the weather. (pause) When I got up this morning, I was so happy to see that it was sunny/raining. (smile) I really/actually enjoy this kind of weather.  
Let's see, (pause, eyebrow lift) what else has been going on?  
Well, (pause) over the weekend, I moved into my new apartment.  
It is a really nice place but I've always hated moving. (eye squint, wrinkle nose)  
You know, packing everything up, trying to fit it all into boxes, lugging it into the truck then back out again (pause).  
I don't mind unpacking though.  
It is kind of fun to find new places for everything.  
I have a bit of an eye for interior design, so I kind of visualize the space before I set anything up. (nod)  
Usually, once everything is in its place, it looks great (pause).  
I've never lived alone before but I'm actually looking forward to it.  
I went from living with my parents (eyebrow raise) to living with my husband.  
I'm moving now because we just separated. (frowny face, pause)  
It just wasn't working between us. (fidgeting hands, eyes down)  
I was quite young when we got engaged.  
We thought things would get better when we got married, (tsk face, pull down sides of mouth) but it didn't take long before the problems started (head shake).  
We eventually realized that our values were actually quite different.  
I don't know why we couldn't see that when we were dating. (pause, wrinkle nose, slight head shake)  
It was really difficult to make that decision to separate, especially after being married for such a short time.  
At the same time, it is a bit of a relief to not be arguing all the time.  
It's also somewhat exciting to have a new apartment to set up and to be free to do whatever I want. (smile)  
I can put things where I want and go out where I want without having to consult anybody. (smile, nod)  
I guess I see it as a new start and I'm looking forward to it. (oh, well face)  
Anyway, (pause, shrug) that's what's on my mind. What has been on your mind this week?

## Anxiety and Disclosure Ratings

1. How many pauses were there during the conversation, in which the participant did not know what to do or say?

1	2	3	4	5	6	7
none						a lot

2. To what extent did the participant fidget?

1	2	3	4	5	6	7
not at all			some			noticeably

3. To what extent did the participant show appropriate eye contact during the conversation?

1	2	3	4	5	6	7
looked away a lot			looked away a little			appropriate eye contact

4. How tense was the participant's body?

1	2	3	4	5	6	7
relaxed						very tense

5. Please rate on the following scale how anxious or nervous the participant appeared during the interaction.

1	2	3	4	5	6	7
not at all anxious						extremely anxious

6. How **intimate** were the participant's disclosures?

1	2	3	4	5	6	7
very <b>nonintimate</b>						very intimate

7. How well did the participant perform in the conversation overall?

1	2	3	4	5	6	7
very poorly						very well

## Appendix D

*Debriefing*

So, that's the end of the study. I'd like to tell you more about it in just a minute, but first, I'm interested in your reactions. What did you think of the study? What did you think of your partner?

Well, what we are studying here is the expectations that people have about social situations. Some writers believe that anxious people have negative expectations about social events. So, when they think about a social situation, they feel anxious about it, expect themselves to perform poorly, and expect that others will not like them. We are wondering if it is possible to change people's expectations about social situations. If we can change expectations, maybe this will make anxious people feel more comfortable in the situation and make them perform better in a conversation. The questionnaires you and others fill out will tell us how different people perceive interactions and whether or not changing expectations of social events works.

One thing that is really important when we do a study like this is that our assistant acts the same way and says the same things to everybody. That way, we can be sure that any differences on the questionnaires are due to the different ways people perceive things and not due to our assistant's behaviour. For this reason, the story that our assistant told you was worked out before the study began. She tells everyone the same things. How do you feel about that?

Ultimately, we are interested in trying to develop new treatment techniques to help people who have anxiety about social situations. To treat people, we need to get them to approach situations they are afraid of. We want to see if by altering expectations of events, these people will be more comfortable going into difficult situations. Do you have any questions?

## Appendix E

*Confederate Self-disclosure Scripts*Script 1 Ill sister.

I always wonder exactly what I should talk about (laugh, pause). Well, (short pause) there's always the weather. (pause) When I got up this morning, I was so happy (unhappy) to see that it was sunny/raining. (smile) I (don't) really/actually enjoy this kind of weather. Let's see, (pause, eyebrow lift) what else has been going on? Well, (pause) I've been kind of busy the past few weeks actually. My aunt is visiting from England. (pause) She's never seen Vancouver, so we have been doing a lot of sightseeing and stuff. It's been kind of fun to do some of the tourist things that you never actually do when you live here, like Stanley Park and Science World. (pause) My aunt really likes Vancouver. She's always inviting me to stay with her if I ever get to England. I would love to go there one day, (nod) but hopefully when I go nobody will get sick. (facial shrug, pause, look thoughtful) It kind of changes the focus of your trip. (scrunchy face) My aunt has been planning this visit for a long time but just before she arrived, my sister got pretty sick. (frown and keep a down face until "my sister and I are close") She has been suffering from pneumonia for several weeks now. We thought it was just a cold at first and didn't think much of it, but then it got so bad that she ended up in the hospital. (concerned look) For a while, we were really concerned that she might not make it. So, I've spent a lot of time lately taking care of her and worrying about her. (pause) I'm really close to my sister. It was pretty scary to think of her in such bad shape. (scrunchy face) My mom and I want to make sure that we do everything we can to get her back on her feet as quickly as possible. (pause) Fortunately, (smile) she's doing much better already. She's home from the hospital and can even go out with us sometimes but she still needs to rest a lot. (pause, look thoughtful) Things like this really make you realize how much we take life for granted. It's so easy to forget how precious life is and that it can be taken from you unexpectedly. I guess one positive outcome from this experience is that this scare brought my family a lot closer together. (smile, look up, pause) Anyway, (pause, shrug) that's what's on my mind. What has been on your mind this week?

Script 2 Separation from partner.

I always wonder exactly what I should talk about (laugh, pause) Well, (short pause) there's always the weather. (pause) When I got up this morning, I was so happy to see that it was sunny/raining. (smile) I really/actually enjoy this kind of weather. Let's see, (pause, eyebrow lift) what else has been going on? Well, (pause) over the weekend, I moved into my new apartment. It is a really nice place but I've always hated moving. (eye squint, wrinkle nose) You know, packing everything up, trying to fit it all into boxes, lugging it into the truck then back out again (pause). I don't mind unpacking though. It is kind of fun to find new places for everything. I have a bit of an eye for interior design, so I kind of visualize the space before I set anything up. (nod) Usually, once everything is in its place, it looks great (pause). I've never lived alone before but I'm actually looking forward to it. I went from living with my parents (eyebrow raise) to living with my husband. I'm moving now because we just separated. (frowny face, pause) It just wasn't working between us. (fidgeting hands, eyes down) I was quite young when we got engaged. We thought things would get better when we got married, (tsk face, pull down sides of mouth) but it didn't take long before the problems started (head shake). We eventually realized that our values were actually quite different. I don't know why we couldn't see that when we were dating. (pause, wrinkle nose, slight head shake) It was really difficult to make that decision to separate, especially after being married for such a short time. At the same time, it is a bit of a relief to not be arguing all the time. It's also somewhat exciting to have a new apartment to set up and to be free to do whatever I want. (smile) I can put things where I want and go out where I want without having to consult anybody. (smile, nod) I guess I see it as a new start and I'm looking forward to it. (oh, well face) Anyway, (pause, shrug) that's what's on my mind. What has been on your mind this week?



## Appendix F

*Informed Consent Form*

*Principal Investigator:* Lynn Alden, PhD, Psychology Department (822-2198)

*Co-Investigator:* Tanna Mellings, graduate student, Psychology Department (822-5047)

Research for a doctoral dissertation.

In this study, we are looking at how people perceive social interactions. Your participation will help us to develop strategies to improve treatment programs for people with social anxiety or social phobia.

During the study, you will be participating in a brief social interaction. You will also be asked to complete some questionnaires. The study should take no more than one hour to complete.

All information you provide is strictly confidential. Only a participant number will appear on the forms you complete. The forms will be kept in a locked filing cabinet. Participants will not be identified by name in any reports of the completed study.

In order to defray the costs and inconvenience of transportation, each participant will receive an honorarium in the amount of \$20 or group treatment for social phobia.

If you have any questions or desire further information about this research, please feel free to ask us at any point during the study or afterwards. You may contact Dr. Alden or Tanna Mellings at 822-2198 or 822-5047. If you have any concerns about your treatment or rights as a research participant, you may contact the Director of Research Services at the University of British Columbia, Dr. Richard Spratley at 822-8598.

**Consent:**

I understand that my participation in this study is entirely voluntary, I may withdraw from the study at any time, and refusal to participate will not affect my treatment in any way.

I have received a copy of this consent form for my own records.

My signature on this form indicates that I understand the information provided and agree to participate in this study.

\_\_\_\_\_  
Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Date

## Appendix G

*Participant Measures*

## Life Values and Interests Questionnaire

Please answer all of the following questions:

1. What do you think is more important, career or family?
2. What are your hobbies or interests?
3. Do you like sports? If so, what sports do you like?
4. What are your career goals?
5. Do you like to read? If so, what are your favourite types of books?
6. What is your favourite thing to do on a free night?
7. Do you enjoy travelling? If so, where would you most like to travel to in the world?

## SIAS (with scoring key)

Please indicate the degree to which you feel the statement is characteristic or true of you using the following scale.

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

1. I get nervous if I have to speak with someone in authority (teacher/ boss).
2. I have difficulty making eye-contact with others.
3. I become tense if I have to talk about myself or my feelings.
4. I have difficulty mixing comfortably with the people I work with.
5. I find it easy to make friends my own age.\*
6. I tense-up if I meet an acquaintance in the street.
7. When mixing socially I am uncomfortable.
8. I feel tense if I am alone with just one person.
9. I am at ease meeting people at parties.\*
10. I have difficulty talking with other people.
11. I find it easy to think of things to talk about.\*
12. I worry about expressing myself in case I appear awkward.
13. I find it difficult to disagree with another's point of view.
14. I have difficulty talking to an attractive person of the opposite sex.
15. I find myself worrying that I won't know what to say in social situations.
16. I am nervous mixing with people I don't know well.
17. I feel I'll say something embarrassing when talking.
18. When mixing in a group, I find myself worrying I will be ignored.
19. I am tense mixing in a group.
20. I am unsure whether to greet someone I know only slightly.

\*= reverse scored.

## SPS

Please indicate the degree to which you feel the statement is characteristic or true of you using the following scale.

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

1. I become anxious if I have to write in front of other people.
2. I become self-conscious when using public toilets.
3. I can suddenly become aware of my own voice and of others listening to me.
4. I get nervous that people are staring at me as I walk down the street.
5. I fear I may blush when I am with others.
6. I feel self-conscious if I have to enter a room where others are already seated.
7. I worry about shaking or trembling when I'm watched by other people.
8. I would get tense if I had to sit facing other people on a bus or a train.
9. I get panicky that others might see me faint, or be sick or ill.
10. I would find it difficult to drink something if in a group of people.
11. I am worried people will think my behavior odd.
12. It would make me feel self-conscious to eat in front of a stranger at a restaurant.
13. I would get tense if I had to carry a tray across a crowded cafeteria.
14. I worry I'll lose control of myself in front of other people.
15. I worry I might do something to attract the attention of other people.
16. When in an elevator, I am tense if people look at me.
17. I can feel conspicuous standing in a line.
18. I get tense when I speak in front of other people.
19. I worry my head will shake or nod in front of others.
20. I feel awkward and tense if I know people are watching me.

## Appraisal Questionnaire

1. How similar do you think your partner will be to you?

1 2 3 4 5 6 7  
not at all very much

2. To what extent do you expect to get along with your partner?

1 2 3 4 5 6 7  
not at all very much

3. To what extent are you confident about how to respond to your partner during the interaction?

1 2 3 4 5 6 7  
not at all very much

4. To what extent do you think that you will be able to be open during the interaction?

1 2 3 4 5 6 7  
not at all very much

## Focus of Attention Questionnaire

Please rate these items as accurately as possible in reference to the conversation you just had.

1. I was focusing on the other person's appearance or dress.  

1	2	3	4	5
not at all		somewhat		very much
2. I was focusing on the butterflies in my stomach.  

1	2	3	4	5
not at all		somewhat		very much
3. I was focusing on the features or conditions of the physical surroundings (e.g. appearance, temperature).  

1	2	3	4	5
not at all		somewhat		very much
4. I was focusing on what I would say or do next.  

1	2	3	4	5
not at all		somewhat		very much
5. I was focusing on the impression I was making on the other person.  

1	2	3	4	5
not at all		somewhat		very much
6. I was focusing on how the other person might be feeling about himself/herself.  

1	2	3	4	5
not at all		somewhat		very much
7. I was focusing on the tension in my body.  

1	2	3	4	5
not at all		somewhat		very much
8. I was focusing on what I thought of the other person.  

1	2	3	4	5
not at all		somewhat		very much
9. I was focusing on my level of anxiety.  

1	2	3	4	5
not at all		somewhat		very much
10. I was focusing on what the other person was saying or doing.  

1	2	3	4	5
not at all		somewhat		very much

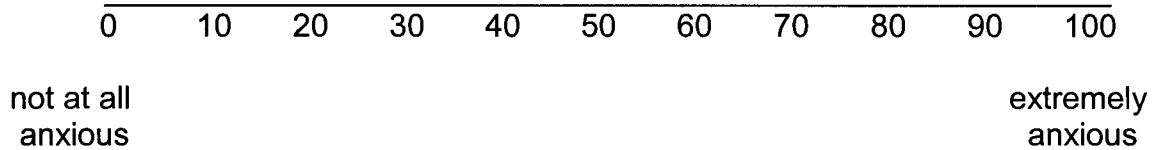
## Recall Questionnaire

Please think about your partner and what she talked about and then answer the following questions. If you don't know the answer, please just write DK in the space.

1. What is your partner's name?
2. Describe the shirt your partner was wearing.
3. What sorts of activities has your partner been doing recently?
4. What major life events did your partner speak about?
5. Who has your partner been spending most of her time with recently?
6. What family members did your partner talk about?
7. How did your partner end her part of the conversation?
8. Who does your partner live with?
9. Where would your partner like to travel?

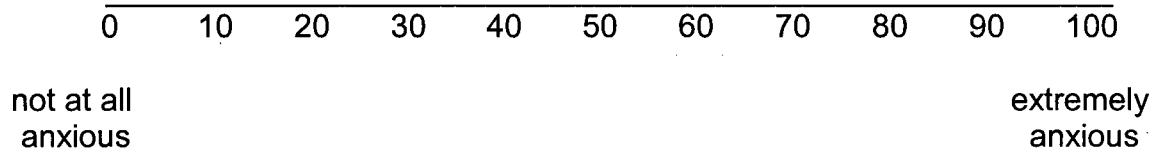
## Anxiety Thermometer 1

Please rate on the following scale how anxious or nervous you feel at this moment as you think about having a conversation with your partner.



## Anxiety Thermometer 2

Please rate on the following scale how anxious or nervous you felt during the conversation. If your anxiety changed throughout the conversation, rate the most anxiety you felt.





## Anxiety and Disclosure Questionnaire

**Instructions:** Please answer the following questions about the conversation you just had as accurately as possible. Please remember that your answers are confidential. Your partner will not see any of this information.

1. How many pauses were there during the conversation, in which you did not know what to do or say?

1	2	3	4	5	6	7
none						a lot

2. To what extent did you fidget during the conversation (e.g. touch clothing, etc.)?

1	2	3	4	5	6	7
not at all			some			noticeably

3. To what extent did you show appropriate eye contact during the conversation?

1	2	3	4	5	6	7
looked away a lot			looked away a little			appropriate eye contact

4. How tense was your body?

1	2	3	4	5	6	7
relaxed						very tense

5. Please rate on the following scale how anxious or nervous you felt during the conversation. If your anxiety changed throughout the conversation, rate the most anxiety you felt.

1	2	3	4	5	6	7
not at all anxious						extremely anxious

6. How **intimate** were your disclosures?

1	2	3	4	5	6	7
very <b>nonintimate</b>						very intimate

7. How well did you perform in the conversation overall?

1	2	3	4	5	6	7
very poorly						very well

## The PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

_____interested	_____irritable
_____distressed	_____alert
_____excited	_____ashamed
_____upset	_____inspired
_____strong	_____nervous
_____guilty	_____determined
_____scared	_____attentive
_____hostile	_____jittery
_____enthusiastic	_____active
_____proud	_____afraid

## Demographic Questionnaire

Participant number:

Gender:

Age:

How would you describe your ethnic heritage?:

First language:

Marital status:

Years of education:

Occupation: