UNIVERSITY OF SOUTHAMPTON

FACULTY OF MEDICINE, HEALTH AND LIFE SCIENCES

Department of Psychology

Post-Event Processing in Social Phobia and Social Anxiety

Laura Dannahy

Submitted in partial fulfilment of the

Doctorate in Clinical Psychology

July 2004

Words: 21,085

Thesis Abstract

The Clark & Wells (1995) model of social phobia conceptualises post-event processing as one of four processes in the maintenance of this disorder. According to Clark & Wells (1995), post-event processing involves a review of events following a social interaction, during which individuals with social phobia dwell on anxious feelings and negative cognitions relating to their self-perception. As a consequence, the social situation is appraised negatively, subsequently exacerbating anxiety and lowering anticipation for success in future social situations. The literature review examines the limited empirical evidence for the role of post-event processing in the maintenance of social phobia, and considers literature from a number of theoretical perspectives that may serve to further understanding of the function of post-event processing. These include attention and memory bias, imagery and the observer perspective, rumination in depression, and emotional processing. The empirical study investigated the relationship between self-appraisals of performance and the frequency and valence of post-event processing in individuals high and low in social anxiety. Following a conversation with an unknown individual, high socially anxious individuals experienced more anxiety, predicted worse performance, underestimated actual performance, and engaged in more post-event processing than low socially anxious participants. The degree of negative post-event processing was linked to both the extent of social anxiety and negative appraisals of performance both immediately after the conversation task and one week later. Differences were also observed in some metacognitive processes. The results replicate previous research findings and provide further support for Clark & Wells' (1995) conceptualisation of post-event processing.

Acknowledgements

I would like to thank Lusia Stopa for her endless encouragement, guidance and dedication throughout the duration of this project, and for helping to make the experience a rewarding one. I would also like to express my thanks to the participants, without whom this research would not have been possible, and Colin for his unyielding support and patience. Finally, for my Dad - I finished it.

Page

Contents

Empirical Paper

Post-Event Processing in Social Anxiety

Literature Review

Post-Event Processing in social phobia and social anxiety:

A review of the literature

Laura Dannahy

Prepared for submission to Clinical Psychology Review (see Appendix A)

Post-Event Processing in social phobia and social anxiety: A review of the literature

Laura Dannahy

Department of Psychology

University Of Southampton

Author Key Words:

Social phobia, social anxiety, post-event processing

Running Head

Post-Event Processing

Address correspondence to: Laura Dannahy, Department of Clinical Psychology, University of Southampton, Highfield, Southampton. SO17 1BJ, UK.

Post-Event Processing in social phobia and social anxiety:

A review of the literature

Abstract

The cognitive model of social phobia by Clark and Wells (1995) proposes that there are four distinct processes in the maintenance of this disorder. This review focuses on the fourth of these processes: post-event processing, and its role in social phobia and social anxiety. Clark and Wells (1995) suggest that the thoughts and feelings processed whilst a socially anxious individual is in a social situation, in addition to recollection of previous memories of past social failure, guide the cognitive content and associated affect featured in post-event processing. As a consequence, the interaction is appraised more negatively than it actually was, thus exacerbating anxiety and lowering anticipation for success in future social situations. This paper describes Clark and Wells' (1995) model, and then reviews the current empirical base on post-event processing. In view of the paucity of empirical research to date, literature from a number of theoretical perspectives that may provide further clues into the nature of post-event processing is also examined. These include attention and memory bias, the use of imagery and the observer perspective, rumination in depression, and emotional processing. The final section of this review summarises the conclusions and suggests areas for future research.

Post-Event Processing in social phobia and social anxiety: A Review of the Literature

1. Introduction

Social phobia is a common and disabling anxiety disorder (Harvey, Clark, Ehlers, & Rapee, 2000), causing significant impairment in social, educational and occupational functioning (Erwin, Heimberg, Juster, & Mandlin, 2002; Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Recent models of social anxiety have emphasised the importance of a negative perception of the self in the maintenance of this disorder. In particular, the Clark and Wells (1995) model of social phobia has been influential in the development of a theoretical understanding of this disorder and enhanced the success of its treatment. In their conceptualisation of social phobia, Clark and Wells (1995) suggest that social phobia is characterised by an intense desire to impart a good impression of the self to others, yet insecurity in the individual's perception of his or her ability to do so. As a consequence of negative schemas and dysfunctional assumptions, Clark and Wells (1995) propose several distinct operations in the maintenance of social anxiety; namely self-focused attention, the use of safety behaviours, anxiety-induced performance deficits, and anticipatory and post-event processing.

This review will focus on post-event processing and its role in social phobia and social anxiety. According to Clark and Wells (1995), post-event processing involves a review of events following a social interaction, whereby the individual focuses on anxious feelings and negative cognitions that focus on the social self. They suggest

that the thoughts and feelings processed whilst the individual was in the social situation, in addition to recollection of previous memories of past social failure, guide the cognitive content and associated affect that is present in post-event processing. In consequence, individuals with social anxiety are likely to appraise their performance as more negative than it really was, thus exacerbating anxiety, and possibly leading to avoidance of future social interactions.

This review will begin with a definition of social phobia and its prevalence. The next section will examine current cognitive conceptualisations of social anxiety and social phobia, with particular emphasis on the Clark and Wells' (1995) model. The following section reviews the empirical evidence that supports the role of post-event processing in the maintenance of social anxiety and social phobia. This will be followed by an exploration of a number of theoretical perspectives that may serve to further our understanding of the function and nature of post-event processing. Theoretical perspectives considered include attention and memory bias, the use of imagery and the observer perspective, rumination in depression, and emotional processing. Finally the implications for future research and clinical practice will be discussed.

1.1. Definition of Social Phobia

Social Phobia is defined in DSM-IV as a "marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing" (APA, 1994; p.416). Some of the most commonly feared situations include attending social

gatherings and meeting new people (Rapee, 1995). Studies that have compared the potential of various situations to elicit fear have found that public speaking is the most commonly feared social situation (Holt, Heimberg, Hope, & Liebowitz, 1992; Rapee, Sanderson, & Barlow, 1988; Schneier et al., 1992), closely followed by situations such as parties, meetings, and speaking to authority figures (Rapee et al., 1988).

Social phobia can be distinguished into two distinct 'subtypes'; generalised or specific. The generalised subtype is characterised by a fear of most social situations, whereas individuals with specific social phobia typically fear 'performance' situations such as public speaking, eating, or writing in public. In contrast, although individuals with generalised social phobia often report similar fears, they also fear social interactions, such as informal conversation, speaking to authority figures, and attending social gatherings (Manuzza, et al., 1995). Comparisons of individuals with general and specific social phobia have demonstrated that individuals with generalised social phobia score higher on a broad range of social anxiety and other self-report measures, including self-reported depression (Erwin et al., 2002; Rapee, 1995). Individuals with generalised social phobia also have an earlier age of onset, display greater life interference and general clinical severity, and increased rates of co-morbid depression and alcoholism compared to individuals with specific social phobia (Holt, Heimberg, & Hope, 1992; Manuzza et al., 1995; Schneier et al., 1992).

Social phobia is characterised by an early age of onset. In Hazen & Stein's (1995) review of 15 epidemiological and clinical studies, the mean age of onset was found to range between 13 and 20 years. In the absence of treatment, social phobia follows

a chronic and unremitting course (Reich, Goldenberg, Vasile, Goisman, & Keller, 1994). Individuals with social phobia experience significant social, educational and occupational impairment (Erwin et al., 2002; Magee et al., 1996; Schneier, et al., 1992), and rate their quality of life very low (Safren, Heimberg, & Juster, 1997).

1.2. Prevalence

Recent epidemiological studies indicate that social phobia is extremely common (Erwin et al., 2002; Chapman, Manuzza, & Fyer, 1995). Lifetime prevalence rates based on DSM-IV criteria are 4.9% for males and 9.5% for females (Wittchen, Stein, & Kessler, 1999). The frequency of social fears that do not meet full diagnostic criteria is considerably higher. For example, Pollard and Henderson (1988) and Furmark et al. (1999) both found that over 20% of the population report irrational social fears, although the level of disruption to everyday functioning may not be sufficient to meet full diagnostic criteria for social phobia. Despite the high prevalence of social phobia, many sufferers do not seek treatment (Wittchen et al., 1999). This may be because patients with social phobia see their problems as part of their character. Individuals may only seek help from mental health services when a secondary disorder such as alcoholism or depression develops, or when lifestyle changes mean that the problem becomes excessively disruptive (Stopa & Clark, 2001).

Social phobia is highly comorbid with other psychiatric disorders, particularly anxiety and mood disorders (Brown & Barlow, 1992; Erwin et al., 2002; Schneier et al., 1992). Individuals with social phobia and a co-morbid psychiatric disorder are at risk of experiencing greater distress and impairment. A study conducted by Magee et

al. (1996), for example, showed that while 17.3% of those with social phobia alone reported that this disorder interfered significantly with their lives, caused them to seek professional help, or led them to take medication more than once to control their symptoms, this figure rose to 46.8-60% when a comorbid condition was present.

2. Cognitive Theories of Social Phobia

Cognitive theorists argue that anxiety disorders result from excessively negative appraisals of the dangerousness of certain situations and / or sensations, and that each anxiety disorder is characterised by a specific type of negative appraisal (Beck & Clark, 1988). Cognitive models of social phobia have highlighted the role of dysfunctional beliefs regarding the perceived threat inherent in social situations (with the primary threat stimulus being an audience, and the primary threatening outcome being negative evaluation from the audience) in the maintenance of the disorder (e.g. Beck, Emery, & Greenberg, 1985; Clark & Wells, 1995; Hope, Rapee, Heimberg, & Dombeck, 1990, Rapee & Heimberg, 1997).

People with social phobia assume that other people are inherently critical, and are likely to evaluate them more negatively (Leary, Kowalski, & Campbell, 1988). Moreover, individuals with social phobia attach fundamental importance to being positively appraised by others; yet experience marked insecurity regarding their ability to convey a favourable impression of themselves to others. As a consequence, individuals with social phobia believe that their social behaviour will have a detrimental outcome regarding loss of worth, loss of status, and rejection (Clark & Wells, 1995; Rapee & Heimberg, 1997).

However, despite the fact that many individuals with social phobia recall experiencing embarrassing social events during childhood or adolescence, as adults, they rarely receive unambiguous negative feedback regarding their social performance (Clark, 1999). This poses the question of how social phobia is maintained. Avoidance of feared situations may provide a possible explanation in that this behaviour would prevent individuals from 'testing out' their fears. In consequence, individuals with social phobia would fail to discover that their performance may be more acceptable than they initially anticipated. However, Clark and McManus (2002) argue that avoidance is not a comprehensive explanation, because most individuals with social phobia are regularly exposed to at least some of their feared situations without modification of their distorted beliefs. Cognitive theorists therefore posit that biases in information processing play a crucial role in the maintenance of social phobia.

Examination of information processing biases in socially anxious individuals have demonstrated attentional bias (e.g. Alden & Wallace, 1995; Amir, McNally, Riemann, Burns, Lorenz, & Mullen, 1996; Hope et al., 1990, Stopa & Clark, 2000), memory biases (e.g. Field & Morgan, in press; Lundh & Ost, 1996, Mansell & Clark, 1999, Mellings & Alden, 2000), judgemental bias (e.g. Alden & Wallace, 1995; Foa, Franklin, Perry, & Herbert, 1996; Lucock & Salkovsis, 1988), and interpretation bias for threat relevant information (Amir, Foa, & Coles, 1998). These information processing biases are hypothesised to lead people with social phobia to construe social situations in an excessively negative manner. In consequence, such biases are likely to generate and maintain anxiety and also to modulate behavioural responses

(namely avoidance of feared situations and in-situation safety behaviours) that are likely to prevent improvement (Mansell & Clark, 2002).

Rapee and Heimberg's (1997) information processing model attempts to provide a comprehensive account of the experience of anxiety in social / evaluative situations for people with social phobia. The model describes the manner in which people with social phobia perceive and process information related to potential evaluation and the way in which these processes differ between people who are high and low in social anxiety. Rapee and Heimberg (1997) hypothesise that these processes are essentially similar regardless of whether a social / evaluative situation is actually encountered, anticipated, or ruminated upon. They propose that on entering a social situation, individuals with social phobia form a 'mental representation' or image of their external appearance and behaviour as observed by others. This mental image of external appearance is based on information retrieved from long term memory (e.g. prior experiences, recollection of general appearance), internal cues (e.g. physiological cues), and external cues (e.g. audience feedback). While in a social situation, attentional resources are simultaneously allocated to the salient aspects of the self-image, and also to the detection of negative evaluation by others. At the same time, the individual compares his or her own mental image of performance with the presumed standard of performance expected by others. Rapee and Heimberg suggest that a discrepancy in perceived performance relative to perceived expectation results in the belief that the individual will be negatively evaluated. In consequence, anxiety is exacerbated; the cognitive, behavioural and physiological components of anxiety serve to reinforce the individual's mental representation of his or her appearance / behaviour as viewed by others. Rapee and Heimberg (1997) propose

that this cycle serves to uphold dysfunctional beliefs and assumptions regarding success in social situations, thus maintaining social anxiety.

Clark and Wells (1995) provided a similar theoretical model of social phobia that highlighted the role of biased information processes. Despite the development of the Rapee and Heimberg's (1997) later model, the Clark and Wells' (1995) model of social phobia has continued to influence both theoretical understanding of social phobia and improved success of its treatment (Clark, 2001). Similar to Rapee and Heimberg's (1997) model, Clark and Wells (1995) suggest that individuals with social phobia selectively attend to negative information about social events; this leads to biases in their judgements and recollections of social events, and these biases exacerbate and perpetuate social fears. One unique feature of Clark and Wells' (1995) model is the delineation of several distinct cognitive operations (most notably self-focused attention, anticipatory and post-event processing), that are proposed to contribute to social anxiety (Mellings & Alden, 2000). The next section will review the Clark and Wells (1995) model in detail.

3. The Clark and Wells (1995) Model of Social Phobia

Clark and Wells' (1995) model of social phobia suggests that on the basis of early experiences, individuals with social phobia develop a set of beliefs and assumptions about themselves and social situations that affect the way in which they interpret future social encounters. In their theory, Clark and Wells (1995) state that, "the core of social phobia appears to be a strong desire to convey a particular favourable impression of oneself to others and marked insecurity about one's ability to do so"

(p.69). It is assumed that when people with social phobia enter social situations, dysfunctional beliefs are activated. Clark and Wells identify three categories of dysfunctional beliefs and assumptions: excessively high standards for social performance (e.g. 'Everyone must like me'), conditional beliefs concerning social evaluation (e.g. 'If I make a mistakes, everyone will think I'm stupid'), and unconditional beliefs about the self (e.g. 'I'm unacceptable to others'). Such assumptions lead individuals with social phobia to appraise situations as dangerous, which in turn generates anxiety. The anxiety and negative appraisals are subsequently maintained by a series of vicious cycles.

Clark and Wells (1995) go on to suggest that the symptoms of anxiety can in turn become further sources of perceived danger. Individuals with social phobia become preoccupied with their internal responses and thoughts, to the neglect of other, external, information. In their analysis of why individuals with social phobia fail to disconfirm their pervasive negative beliefs regarding the perceived danger inherent in social events, Clark and Wells postulate four processes that serve to maintain social anxiety. Three of these processes occur during the social situation (namely, self-focused attention, the use of safety behaviours, and anxiety induced performance deficits), whilst the fourth process is concerned with what individuals with social phobia do before entering and after leaving a social situation (anticipatory and post-event processing). This review will now discuss these processes in more detail.

3.1. Self-Focussed Attention

Once the individual enters a feared situation, Clark and Wells (1995) propose that there is a shift in attentional processing to the self, involving detailed self-observation and monitoring in order to manage self-presentation in the feared situation. Clark and Wells (1995) argue that once socially phobic individuals become self-focused, they use their internally generated information to construct an impression of themselves as a social object. The information used to construct this impression includes feelings of anxiety, which the individual assumes can be observed by other people, and either visual images of the self or a 'felt sense' (Teasdale & Barnard, 1993). Socially anxious individuals often fear that other people will see that they are anxious, and tend to overestimate how anxious they appear (Rapee & Lim, 1992; Stopa & Clark, 1993). It is suggested that such overestimates arise because socially anxious individuals erroneously infer that they look as anxious as they feel.

Self-focused attention is also hypothesised to reduce attention to the external environment. In consequence, individuals with social phobia fail to observe other people's responses, and thus do not have the opportunity to disconfirm negative fears and expectations (Clark & Wells, 1995). Stopa and Clark (1993) have hypothesised that this constitutes the fundamental difference between shyness and social phobia. They suggest that people who are shy may enter social situations with many of the same anticipatory concerns as people with social phobia. However, once they are in the situation, they observe other people's responses, and provided the interaction is going reasonably well, the sequence of negative thoughts and anxiety is terminated.

3.2. In Situation Safety Behaviours

While in social situations, Clark and Wells (1995) propose that individuals with social phobia engage in a wide range of behaviours that are intended to reduce the risk of negative evaluation. Safety behaviours can be defined as behaviours which are performed in order to prevent or minimise a feared catastrophe (Salkovskis, 1991). Safety behaviours include both cognitive (for example, memorising everything one has said and comparing it with what one is about to say during a conversation to avoid appearing stupid) and behavioural (e.g. avoiding eye contact, standing on the periphery of a group) strategies. Moreover, safety behaviours maintain negative beliefs, because if a feared catastrophe does not happen, the non-occurrence is attributed to the safety behaviour (Clark, 1999; Clark & McManus, 2002). Salkovskis (1991) and Wells and Clark (1995) both highlight the fact that safety behaviours are problematic because they prevent the individual from disconfirming his or her unrealistic negative expectancies regarding the consequences of certain behaviours or the display of physical symptoms.

Research conducted by Alden and Beiling (1998) provides support for the hypothesis that individuals with high social anxiety engage in more safety behaviours compared to individuals with low social anxiety. In their study, high and low socially anxious individuals participated in a getting acquainted task under conditions in which they were led to believe that the other person was particularly likely to appraise them positively or negatively. Their results demonstrated that high socially anxious individuals used more safety behaviours than low socially anxious individuals. Furthermore, high socially anxious individuals elicited more negative responses from others in the negative appraisal condition compared to controls.

Alden and Beiling's (1998) findings support Clark and Wells' (1995) suggestion that some safety behaviours can make the feared outcome more likely to occur. For example, trying to hide underarm sweating by wearing a jacket may generate more sweating and can draw other people's attention to the individual, covering one's face to hide blushes can result in increased attention to ones self. Moreover, the tendency to continually focus attention on the self, for example, monitoring what is said and how one comes across, may result in the individual with social phobia appearing distant and preoccupied. In consequence, this may be interpreted by others that the individual is being aloof, thus provoking an unfriendly or critical response (Clark, 1999; Clark & McManus, 2002).

3.3. Performance Deficits

Social phobia is unusual among anxiety disorders in the sense that some of the individual's fears may be realistic (Clark & McManus, 2002). Whether individuals with social phobia actually perform more poorly than others on social interaction tasks is, however, a controversial issue, and empirical evidence has been mixed. Studies have demonstrated that observer ratings of social behaviour indicated that individuals with social phobia appear less warm and outgoing (Alden & Wallace, 1995, Stopa & Clark, 1993), with performance deficits hypothesised as the unintended consequence of engaging in safety behaviours (Clark & Wells, 1995). In contrast, Rapee and Lim (1992) found no differences in social performance between high and low socially anxious individuals. Rapee and Heimberg (1997) suggest that the degree of structure in a social situation may be an important determining variable. Situations that involve more clearly defined social rules (e.g. a speech task) are less likely to produce a difference in social performance between individuals with

social phobia and others than are situations that involve unclear social structures (e.g. a party). Further research is, however, needed in order to clarify this issue.

Research has nevertheless consistently confirmed that individuals with social phobia demonstrate a negative cognitive bias in their perception of their own performance in that individuals with social phobia have a tendency to overestimate how negatively other people evaluate their performance compared to an independent observer (e.g. Mellings & Alden, 2000; Rapee & Lim, 1992; Rushbrook, 2003; Stopa & Clark, 1993). It is of note, however, that although a discrepancy between self and other ratings of performance was found in global appraisals of their overall performance, these differences were not found when socially anxious participants were required to rate specific, individual behaviours (Mellings & Alden, 2000). It is therefore possible that socially anxious individuals may perceive positive and negative aspects of their performance accurately, but have a tendency to overestimate the extent to which these characteristics impair the overall impression they have on others (Rapee & Lim, 1992). The tendency for socially anxious individuals to negatively evaluate their performance has been shown to be specific to their own performance as they do not differ from non-anxious individuals in their appraisals of other people's performance (Rapee & Lim, 1992; Stopa & Clark, 1993).

3.4. Anticipatory Processing

Clark and Wells (1995) propose that individuals with social phobia engage in negatively biased information processing in anticipation of a feared social situation. These processes are dominated by thoughts and images of past social failures, and by other predictions of poor performance and rejection. Clark and Wells (1995)

hypothesise that these ruminations serve to increase anxiety and avoidance. If the individual with social phobia subsequently enters the situation, he or she is likely to be in a self-focused processing mode, to expect failure, and is less likely to notice any signs of being accepted by others.

Hinrichsen and Clark's (1999) semi-structured interview study reported results consistent with Clark and Wells' (1995) hypothesis. The semi-structured interview covered a wide range of possible anticipatory processes. In addition to being more likely to report recalling past social failures, high socially anxious individuals were more likely than low socially anxious individuals to: 1) dwell on ways of avoiding the social situation, 2) catastrophise about what may happen in the social situation, 3) engage in anticipatory safety behaviours, and 4) generate negative, distorted, observer-perspective images about how they might appear in the situation.

3.5. Post-Event Processing

Post-event processing can be conceptualised as the final stage of processing following an anxiety provoking event for individuals with social phobia. According to Clark and Wells (1995), leaving or escaping from a social situation does not necessarily bring an immediate end to the individual's negative thoughts and distress. Instead, individuals with social phobia are likely to conduct a review of social events. This 'post mortem' features both anxious feelings and negative cognitions related to self-perception. Clark and Wells argue that the cognitive content and associated affect of post-event processing is guided by the thoughts and feelings that were processed during the social event itself. For example, if individuals with social phobia believe that other people perceived them as stupid and incompetent during a

speech task, the content of post-event processing following their speech may include thoughts indicative of the belief that they have been evaluated negatively, such as "I look stupid" and "Everyone thinks I'm a failure" (Abbott & Rapee, 2004, p.136). Such thoughts are subsequently retrieved during post-event processing, reinforcing the individual's negative evaluation of his or her performance. Clark and Wells' (1995) concept of post-event processing is therefore similar to Rapee and Heimberg's (1997) suggestion that retrospective rumination generates and maintains social anxiety. Clark and Wells (1995) also suggest that post-event processing may provide an explanation as to why some individuals with social phobia report a sense of shame that persists even after the anxiety has subsided.

A further aspect of post-event processing is the retrieval of past recollections of perceived social failures. This is consistent with Rapee and Heimberg's (1997) suggestion that the negative mental representation of performance shown by people with social phobia is partly mediated by memories of prior performance. Although not made explicit in their account, Clark and Wells (1995) imply that recollections of previous social failures confirm the individual's perception of poor performance, thereby serving to maintain and reinforce the negative affect and cognitions associated with social phobia. The processing of social events in this way may also result in the perception of one's performance worsening over time.

The next section of this review will examine the empirical evidence to date that examine Clark and Wells' (1995) proposal that post event processing plays a critical role in the maintenance of social phobia and social anxiety.

4. Post-Event Processing: The Empirical Evidence

Although post-event processing has been the focus of theoretical attention, relatively few studies have empirically investigated post-event processing in social phobia. Rachman, Gruter-Andrew, and Shafran (2000) conducted a preliminary analogue study, comparing groups of high and low socially anxious individuals. Their study aimed to investigate the nature and characteristics of post-event processing and its relationship to social anxiety / phobia. Rachman et al.'s data supports Clark and Wells' (1995) account of post-event processing in that following a social situation, high socially anxious participants reported that they were more likely to ruminate on past unsatisfactory events than low socially anxious participants. The content of the ruminative thoughts was described as recurrent and intrusive, and interfered with the individual's ability to concentrate, presumably by capturing and maintaining the focus of attention. It is of note, however, that in contrast to Clark and Wells (1995) conceptualisation, a number of socially anxious participants reported that post-event processing actually improved matters. The function of post-event processing, therefore, clearly requires further investigation.

Two of the features proposed by Clark and Wells (1995) were not investigated by Rachman et al. (2000); namely the relationship between post-event processing and the sense of shame reported by individuals with social phobia, and the possibility that during the post-event processing period, people retrieve other instances of social failure. Rachman et al. (2000) argued that further research was needed to investigate the nature of the maladaptive cognitions that individuals with social phobia bring into the situation, and how these cognitions are affected by post-event processing. In line with Clark and Wells' (1995) theory, Rachman et al. (2000) hypothesised that

such processing would reinforce maladaptive negative beliefs and assumptions, and perhaps even strengthen and prolong them. Furthermore, Rachman et al. (2000) suggested that the intrusive nature of negative ruminations may interfere with processing information, and speculate about whether post-event processing is a form of emotional processing (or rather a failure to satisfactorily process emotional information), or alternatively, a separate but parallel information process.

Rachman et al.'s (2000) research is open to criticism because their methodology relied on participant's subjective recall of performance in previous social situations. Recent research has attempted to overcome such methodological limitations through engineering social situations within the experimental setting. For example, Mellings and Alden (2000) presented high and low socially anxious individuals with an impromptu speech task. Their results supported Clark and Wells' (1995) model in that high socially anxious individuals engaged in significantly more negative post-event processing about their performance the day following the social interaction than low socially anxious individuals.

Rushbrook (2003) further investigated the impact of post-event processing on subjective distress following a speech task, anticipation of a second speech task, and on actual and perceived performance after a subsequent speech. Participants high and low in social anxiety were placed in one of two conditions: post-event processing, or a distracter task. In contrast to previous findings (e.g. Mellings & Alden, 2000; Rachman et al., 2000), Rushbrook's (2003) results yielded mixed support for Clark and Wells' (1995) conceptualisation of post-event processing. Consistent with Clark and Wells' (1995) model, high socially anxious individuals predicted worse

performance, had more negative thoughts, demonstrated greater conviction in their negative thoughts, and reported more anxiety in the post-event processing condition, compared to low socially anxious individuals. However, contrary to expectations, predictions of performance improved over time in the post-event processing condition. This contradicts Clark and Wells (1995), who suggest that post-event processing contributes to biased processing of information, exacerbates negative thinking, and maintains a negative self-image. Whilst the frequency of negative thinking increased in the post-event processing condition, this increase was smaller than in the distracter condition. Similar to Rachman et al. (2000), Rushbrook (2003) hypotheses that post-event processing may be adaptive in the short term if it facilitates reflective problem-solving. It is possible, however, that results may in part be attributable to a number of inherent methodological limitations: the post-event processing condition may not have elicited the levels of distress required for individuals to engage in post-event processing, the time allowed for post-event processing may have been insufficient, and the use of a non-clinical sample. Rushbrook (2003) suggests that further research using clinical samples is needed, and that future studies should address the methodological shortcomings of the current study.

In contrast to Rushbrook (2003), studies that have investigated the effect of a longer delay using both clinical and non-clinical samples have provided results supportive of Clark and Wells' (1995) conceptualisation of post-event processing. Edwards, Rapee, and Franklin (2003), for example, included an intervening period of a week to allow for rumination influenced recall to become apparent. In their study, individuals high and low in social anxiety were presented with an impromptu speech task,

subsequently followed by the provision of half positive and half negative feedback regarding their performance. A free-recall task was used to test immediate recall for the feedback. Participants returned one week later, and were again tested on recall for the feedback. In addition, participants completed a questionnaire indicating the extent to which they had engaged in both positive and negative post-event processing regarding the speech task during the preceding week. Results showed that in comparison to the low socially anxious group, individuals with high social anxiety engaged in significantly more post-event rumination, the content of which demonstrated a trend towards being negatively biased. The results are also interesting in that they indicate a possible role for a negative memory bias in the recall of socially important information in individuals with high social anxiety. The study failed, however, to demonstrate significant relationships between memory biases and negative post-event processing. Further research into the relationships between these cognitive phenomena and their role in the maintenance of social anxiety is therefore needed.

Preliminary research using clinical samples has yielded similar results to Mellings and Alden (2000) and Edwards et al. (2003). In a study of the relationship between self-appraisals of performance, symptom severity and post-event rumination in social phobia, Abbott and Rapee (2004) asked participants to perform an impromptu speech and told them that their performance would be evaluated. Participants were asked to judge their performance immediately after the speech and one week later, in order to assess the effects of post-event processing on judgements of performance. Results demonstrated that compared to the non-clinical sample, negative self-appraisals of performance were maintained over one week for individuals with social phobia. In

contrast, the non-clinical group became more positive about their performance during the intervening week. The socially phobic group also engaged in more negative rumination than controls, with the best predictors of rumination being social anxiety symptom severity and self-appraisals of performance.

Although preliminary studies have demonstrated a significant association between post-event processing and social anxiety, it may be argued that a comprehensive understanding of the exact nature and features of post-event processing in social phobia remains to be established. Both the Clark and Wells' (1995) model and the current research into post-event processing pose a number of questions: What is the relationship between post-event processing and other processes (e.g. self-focused attention) proposed by the Clark and Wells (1995) model of social phobia? Can studies of memory bias inform our understanding of post-event processing? Can post-event processing be likened to emotional processing? The next section will therefore review the literature from a number of theoretical perspectives (e.g., memory and attention bias, imagery and the use of the observer perspective, rumination in depression, and emotional processing) that may help to further our understanding of, and provide support for, the concept of post-event processing as proposed by Clark and Wells (1995).

5. Theoretical Perspectives Pertinent to Clark and Wells' (1995) Conceptualisation of Post-Event Processing

5.1. Attentional Bias: Self-Focused Attention and Post-Event Processing

Research into attentional bias in individuals with social phobia has demonstrated that individuals with social phobia may show a reduction in the processing of external social information when they are anxious. In a study by Mansell, Clark, Ehlers, and Chen (1999), for example, a modified dot probe paradigm was used to assess the processing of external social and non-social cues in individuals with high and low social anxiety. Participants were briefly presented pairs of pictures, consisting of a face and a household object, and were tested under conditions of social evaluative threat (anticipated public presentation) or no threat. Results demonstrated that high socially anxious individuals showed an attentional bias away from emotional faces in the social evaluative condition, but not in the no-threat condition. In a later study using the same paradigm, Chen, Ehlers, Clark, and Mansell (2002) reported that individuals with social phobia also show greater avoidance of negative, positive and neutral faces compared with non-clinical controls. However, although some studies suggest avoidance of social threat cues in social anxiety, other studies have demonstrated vigilance for social threat cues. In a study by Mogg, Philippot, and Bradley (2004), for example, individuals with social phobia showed an attentional bias toward angry faces, relative to neutral and happy faces. Although research into the nature of attentional biases in social anxiety and social phobia has yielded mixed results, the existence of attentional biases may influence the content of post-event processing. For example, selective attention to threat cues may limit the processing of positive or neutral cues during a social situation. In consequence, post-event

processing may reflect this attentional bias, with retrospective judgements made on the basis of the negative information processed during the social situation.

In addition to biased processing of external information, a number of studies have provided evidence consistent with the hypothesis that socially anxious individuals use internal information to make excessively negative inferences about how they appear to others (e.g. Mansell & Clark, 1999; Mansell, Clark, & Ehlers, 2003; Mellings & Alden, 2000; Mulkens, de Jong, Dobbelaar, & Bogels, 1999; Wells & Papageorgiou, 2001), and display larger negative biases in self-related judgements compared to individuals with low social anxiety (e.g. Alden & Wallace, 1995; Mellings & Alden, 2000; Rapee & Lim, 1992; Stopa & Clark, 1993). The current research base into self-focused attention may thus provide preliminary evidence to suggest an association between self-focused attention and post-event processing. For example, increased attention to self-related phenomena limits the availability of the cognitive resources that are necessary to accurately process external information during a social situation. In consequence, post-event processing may reflect this attentional bias and may be characterised by negatively valenced and biased information that subsequently influences the individual's judgement regarding his or her performance.

The Clark and Wells (1995) model of social phobia further proposes that observer images and the use of the observer perspective are specific aspects of self-focused attention that are particularly important in the maintenance of social anxiety. The next section will consider the role of imagery and the observer perspective in relation to post-event processing.

5.2. Imagery and the 'Observer Perspective'

Images are defined as contents of consciousness that possess sensory qualities, as opposed to those that are purely verbal or abstract (Hackmann, 1998). Although images can have qualities associated with any of the sensory modalities, visual imagery is the most common (Horowitz, 1970). It has been argued that images are important in all cognitive models of anxiety (Spurr & Stopa, 2002). In an early study by Beck, Laude, and Bohnert (1974), for example, spontaneously occurring images were investigated using free recall in a group of patients with various anxiety disorder diagnoses. Their results demonstrated that images were common and often depicted both physical and psychosocial danger. Beck et al. (1974) concluded that images were as likely as verbal thoughts to cause anxiety and behavioural avoidance, and as a result maintain the disorder. Recent research into social phobia has identified imagery as a key maintaining factor. For example, in a study by Hackmann, Clark, and McManus (2000), individuals with social phobia repeatedly drew upon negative images of adverse social events when they recalled anxiety-provoking social situations.

When individuals experience spontaneous images of themselves in a social situation, these images may be based on interoceptive sources of information, namely somatic symptoms, thoughts and feelings about the self, and in some cases, memories of actual events (Hackmann, et al., 2000, Wells & Papageorgiou, 2001). Clark and Wells (1995) suggest that individuals with social phobia may construct 'observer perspective' visual images, in which they see themselves from an external point of view. The alternative to the 'observer perspective' is the 'field perspective' where the visual image is seen as though the person were viewing the scene from his or her

own eyes, observing the details of what is going on around him or her (Wells, Clark, & Ahmad, 1998). The Clark and Wells (1995) model proposes that the observer perspective may be a particularly powerful maintaining factor. This is because the image of the self is seen from the perspective of another person, and provides credible evidence to reinforce the individual's distorted perception of how she or he appears to others. In consequence, a negative image perceived from an observer perspective could raise anxiety and contribute to behavioural avoidance.

The use of the 'observer perspective' during a social situation may provide further understanding of the pathological processes that occur during both anticipatory and post-event processing in individuals with social phobia (Wells, Clark, & Ahmad, 1998). In both anticipatory and post-event processing, Clark and Wells (1995) argue that individuals with social phobia tend to dwell on recollections of past social interactions in order to evaluate their performance, and predict how well they will perform in future interactions. If a social event is viewed from an observer perspective 'on-line' (i.e. at the time the event is encountered), individuals with social phobia will have little access to information regarding how others behaved, and hence during post-event processing, the individual could not access information that might contradict his or her negative self-appraisal of performance. Furthermore, Wells et al. (1998) propose that if memories of a social event are from an observer perspective, self-consciousness may be heightened when individuals are anticipating a forthcoming social situation. In consequence, when an individual with social phobia enters a social situation, he or she will already be in a processing mode in which attention is directed away from what actually happens, and onto potentially

misleading information that subsequently contributes to the content of post-event processing.

To date, however, no studies have formally tested the relationship between self-focus and the observer-perspective, and post-event processing. In order to advance our understanding of the nature of post-event processing and to further develop Clark and Wells' (1995) model, future research must be conducted to clarify the relationships between these cognitive processes.

5.3. Interpretation Bias and Post-Event Processing

Clark and Wells (1995) suggest two biases in the interpretation of external social events that may play a role in the maintenance of social phobia. First, individuals with social phobia have a tendency to interpret ambiguous social events in a negative manner. Second, they may interpret mildly negative social events (e.g. mild criticism from an acquaintance) in a catastrophic fashion. Amir et al.'s (1998) findings support the first of these two hypotheses. Amir et al (1998) investigated interpretation of ambiguous social events. A modified version of Butler and Mathews' (1983) questionnaire was used to compare patients with generalised social phobia, patients with obsessive compulsive disorder, and non-patient controls. Participants were presented with ambiguous social events (e.g. "You see a group of friends having lunch, they stop talking when you approach"), and non-ambiguous social events (e.g. "You get your cable bill and notice that..."). After each event, three possible interpretations were presented and participants were asked to rank-order the interpretations with respect to the likelihood of either coming into their own mind or to a "typical person's" in a similar situation. The results showed that individuals with

social phobia were more likely to make a negative interpretation of an ambiguous social event, yet did not differ from the other control groups in their interpretation of ambiguous non-social events.

Stopa and Clark (2000) confirmed and extended Amir et al.'s (1998) findings. In their study, patients with social phobia, equally anxious patients with another anxiety disorder, and non-patient controls were presented with ambiguous scenarios depicting social and non-social events, and with unambiguous scenarios depicting mildly negative social events. Results suggested that compared to both control groups, individuals with social phobia were more likely to interpret ambiguous social events in a negative fashion. Further to Amir et al. (1998), Stopa and Clark (2000) also demonstrated that individuals with social phobia had a tendency to catastrophise in response to unambiguous, mildly negative social events.

In terms of the content of post-event processing, people with social phobia report "retrospective judgements about social situations that appear consistent with a negative interpretative bias" (Hirsch & Mathews, 2000; p.705). However, it is unclear whether biased interpretative inferences are made 'on-line' (i.e. during a period of social interaction), or whether they are the product of slower 'off-line' processing in which judgements are made retrospectively, that is during a period of post-event processing (Clark & McManus, 2002). In an extension of their earlier study (Hirsch & Mathews, 1997) Hirsch and Mathews' (2000) study of on-line processing in a text comprehension task provided data that is consistent with the latter possibility. Consistent with their earlier findings (Hirsch & Matthews, 1997), Hirsch and Mathews (2000) found that individuals with social phobia do not

routinely make either positive or negative on-line inferences about ambiguous social information. This contrasts with non-socially anxious controls, who used external cues to generate on-line inferences that were biased in a positive direction. Hirsch and Mathews (2000) concluded that this positive inferential bias in non-anxious individuals serves as a protective mechanism which may maintain self-esteem and prevent clinical levels of social anxiety from developing. However, this mechanism is impaired in individuals with social phobia who do not have a positive inferential bias and may go on to make negative inferences 'off-line' after the event. If individuals with social phobia do not routinely make on-line inferences, then performance must be retrospectively judged on the basis of pre-existing negative beliefs or images during post-event processing.

Hirsch and Mathews' (2000) findings may have important implications for therapeutic intervention. Existing cognitive and behavioural treatments for social phobia include methods aimed at altering negative beliefs and reducing anxiety through exposure to social situations varying in difficulty. Hirsch and Mathews (2000) argue that such treatments may be extended to include additional procedures, directed at re-establishing the positive on-line inferential process that is apparently absent in people with social phobia. One possible method is to increase the attention paid to external cues that could be used to generate positive inferences and to practise generating such inferences under conditions designed to support positive rather than negative inferences. Research into the development of such treatment methods is required if theory is to be consolidated with clinical practice.

5.4. Memory Bias and Post-Event Processing

Although evidence for interpretation biases in social phobia has been established, research investigating memory biases in socially anxious populations has yielded inconsistent results. A number of studies have failed to show significant differences in memory bias for threat between high and low socially anxious individuals (e.g. Becker, Roth Andrich, & Margraf, 1999; Cloitre, Cancienne, Heimberg, Holt, & Liebowitz, 1995; Lundh & Ost, 1997; Rapee, McCallum, Melville, Ravenscroft, & Rodney, 1994; Wenzel & Holt, 2002). In contrast to these studies, a number of other studies have demonstrated such differences (e.g. Amir et al., 2000; Edwards et al., 2002; Field & Morgan, in press; Lundh & Ost, 1996; Mansell & Clark, 1999; Mellings & Alden, 2000). Differences between studies that have shown memory biases in social anxiety and those that have not are difficult to discern (Edwards et al, 2003). However, studies that have demonstrated memory biases in social anxiety may have used more ecologically valid paradigms. Mansell and Clark (1999), for example, criticise the methodology used in previous studies that have failed to find anxiety-related bias in memory, suggesting that such studies have not utilised techniques for inducing the target state in the laboratory. In their study on retrieval biases in memory, for example, Mansell and Clark (1999) argue that the emotional state (namely anxiety) must be activated at the time of retrieval, and the material to be retrieved must be directly relevant to the concerns that characterise the emotional state (namely social threat).

At least two types of memory process are hypothesised to contribute to the maintenance of anxiety disorders: selective retrieval and selective encoding of information. Mansell and Clark (1999) illustrated that high socially anxious

individuals had a tendency to selectively retrieve information which appeared to confirm their worst fears. In their study, high and low socially anxious students encoded positive and negative words in three different encoding conditions: public self-referent (describes what someone who knows you would think of you), private self-referent (describes how you think about yourself), and other-referent (describes your next door neighbour). After encoding the words, participants were either threatened with giving a speech or not threatened. They were then asked to recall the words. High socially anxious individuals recalled fewer positive words and tended to recall more negative words than low socially anxious participants. This effect only occurred, however, when individuals were anticipating giving a speech, and it was restricted to words that had been encoded in the public self-referent condition (i.e. how you would appear to other people). Mansell and Clark (1999) hypothesised that the observed memory bias must have occurred at retrieval, rather than encoding, because the speech threat occurred after encoding. These results are relevant to post-event processing because selective retrieval of negative memories regarding the social self are likely to influence the content of post-event processing and its affective tone. These memories may maintain social anxiety in that prior to subsequent social events, individuals with social phobia may engage in anticipatory anxiety, characterised by recollections of past failures and predictions of poor performance (Hackmann et al., 2000). In consequence, the socially anxious individual's distorted perception of his or her social self may fail to update because of repeated activation of these specific memories.

Post-event processing has been specifically linked to biased memory recall in recent research. In Mellings and Alden's (2000) study, socially anxious and non-anxious

individuals participated in a social interaction with an opposite sex confederate. Following this, participants were asked to complete measures of self-focused attention, ratings of anxiety-related physiological sensations and anxiety-related behaviour. At a second session the following day, participants rated the frequency of ruminative thinking, memory for anxiety-related physiological sensations and anxiety-related behaviour, and two additional measures of recall of self- versus external-information. High socially anxious individuals engaged in more post-event processing the day following the social interaction than low socially anxious individuals. Moreover, the frequency of post-event rumination predicted recall of negative self-related information on the open-ended memory task. Mellings and Alden (2000) suggested that post-event processing perpetuates existing cognitive biases through the maintenance of memory traces, and could increase the salience of negative self-related information, thus maintaining initial biases. Mellings & Alden (2000) found that selective attention to negative self-related information (rather than selective retrieval processes) led to biases in the recollection of a past social interaction, and that post-event processing contributed to a bias in recall that favoured negative self-related information.

Evidence for a negative memory bias in individuals with high social anxiety has also been demonstrated by Edwards et al. (2003). Their results showed that compared to low socially anxious individuals, a negative memory bias existed in high socially anxious individuals immediately after an impromptu speech task and also one week later. An interesting finding was that the negative memory bias did not increase over time as a consequence of post-event processing. Like Mellings and Alden (2000), Edwards et al. (2003) suggested that the negative bias in recall may reflect an

encoding bias rather than a retrieval bias. It is of note, however, that the correlational analyses showed no significant relationship between the extent of negative rumination and the degree of negative recall bias at either time. Thus, in contrast to the relationship predicted by Clark and Wells (1995), the results suggested that post-event processing and memory bias may be relatively independent of each other. However, methodological limitations (e.g. use of analogous samples, possible measurement error) mean that caution is necessary before firm conclusions can be drawn from this study. Further research, perhaps using clinical samples, is required before the independence of these mechanisms can be fully accepted.

In opposition to Edwards et al.'s (2003) findings, a recent study by Field and Morgan (in press) has provided evidence to suggest a relationship between memory and post-event processing. The purpose of this study was to determine whether post-event processing affected retrieval of autobiographical memories rated as negative, anxious, and shameful in a sample of socially anxious individuals and non-anxious controls. In contrast to Mellings and Alden's (2000) study, which focused on the frequency of ruminative thoughts as a predictor of encoding negative self-related information, Field and Morgan attempted to show how ruminative responses may lead to a bias in memory recall. Socially anxious individuals recalled memories that were rated as significantly more negative and shameful regardless of the type of post-event processing engaged in compared to non-anxious controls. Field and Morgan's findings are consistent with Mellings and Alden's (2000) suggestion that frequency of post-event processing predicts recall of negative self-related information in social phobia. However, whereas Mellings and Alden (2000) suggest that this relationship reflects a bias in encoding information about a social event, Field and Morgan argue

that there is also a bias in the retrieval of past information. Post-event processing may lead individuals with social anxiety to generate negative memories regarding past events and experiences.

In line with previous research (e.g. Edwards et al, 2003; Mansell & Clark, 1999; Mellings & Alden, 2000), Field and Morgan's (in press) finding that socially anxious individuals recall more negative and shameful memories than low socially anxious individuals supports Clark and Wells' (1995) model. One puzzling finding of the study, however, was that type of post-event processing had no effect on how positive or how shameful the memories were. Regardless of whether post-event processing was positive or negative, socially anxious individuals drew upon both negative and shameful self-related autobiographical memories. Field and Morgan postulate that for individuals with social phobia, positive rumination may have no positive effect on memories recalled. This is consistent with Hackmann et al.'s (2000) observation that early unpleasant experiences may lead to the development of excessively negative images which fail to update even in light of favourable experiences. Positive post-event processing may have had no effect in Field and Morgan's study because, as Hackmann et al. (2000) suggest, positive information is insufficient to update distorted images of the public self.

Field and Morgan's (in press) study provides a further insight into the function of post-event processing. Negative post-event processing led to recall of relatively 'calmer' memories than either the Positive post-event processing condition or the Distracter Task, which suggests that post-event processing may serve an adaptive function, and that this serves as a secondary maintaining factor. Field and Morgan

propose that these calmer memories represent situations that the individual perceived as negative and shameful, but has subsequently come to terms with. This explanation appears to be consistent with Rachman et al. (2000) and Rushbrook (2003), who reported that post-event processing can sometimes improve matters. Similarly, Mellings and Alden (2000) emphasised that prolonged processing of an anxiety-provoking social event can help individuals to resolve their concerns. It is therefore plausible that post-event processing could be used as a compensatory strategy for confronting perceived failures in social situations, thereby serving a similar function to the re-appraisal strategies used in the treatment of post-traumatic stress disorder whereby anxious memories are revisited and re-appraised (Ehlers & Clark, 2000). If this is the case, then these findings have implications for Clark and Wells' (1995) current conceptualisation of social phobia. Field and Morgan argue that although Clark and Wells (1995) may not be incorrect in their beliefs that post-event processing may enhance anxiety about the present situation; post-event processing may nevertheless promote the recall of specific kinds of memories, and these may be calming. As such, Field and Morgan suggest that the focus of the nature and consequences of post-event processing in Clark and Wells' (1995) model could perhaps be expanded to incorporate the adaptive role that post-event processing can play.

The next section of this review will explore how post-event processing in anxiety may be similar to the process of rumination in depression. The function of rumination may provide further clues to the function of post-event processing.

5.5. Rumination and Post-Event Processing

Rumination has been increasingly recognised as an important component of depression (Watkins & Baracaia, 2001). Nolen-Hoeksema (1991) defined rumination as thoughts and behaviours that focus the depressed individual's attention to his or her emotional state and the possible causes and consequences of the individual's symptoms. Although research to date has predominantly focused upon the association between rumination and depression, rumination has also been found to predict anxiety symptoms and mixed anxiety / depression, and has been proposed as a reason for the high levels of co-morbidity between anxiety and depression (Nolen-Hoeksema, 2000). However, methodological limitations are inherent in many studies involving research into rumination in depression, with many studies unable to recruit research participants presenting with depression alone (e.g. MacLeod & Byrne, 1996). This may be due to the high concordance found between the cognitive processes associated with social anxiety and depression (Alden, Beiling, & Meleshko, 1995; Bruch, Matia, Heimberg, & Holt, 1993), and it is therefore difficult to derive firm conclusions as to whether research outcomes are due to depression, anxiety, or their interaction.

Experimental studies into rumination in depression have compared a rumination condition involving focus on depressed mood and its causes and consequences with a distraction condition, in which people think about visual images unrelated to emotion. Relative to distraction, rumination maintains and exacerbates mood, and increases global negative attributions (Lyubomirsky & Nolen-Hoeksema, 1995, Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1993). Rumination also reduces the effectiveness of problem-solving as it may impact on the

individual's ability to attend, concentrate, and engage in simple instrumental behaviour (Lyubomirsky & Nolen-Hoeksema, 1995), and increases the accessibility of negatively biased autobiographical memories (Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998) relative to distraction. Despite the methodological limitations, research into the nature and consequences of rumination in depression to date has demonstrated that rumination may share similarities with the features of post-event processing outlined by Clark and Wells (1995). Like post-event processing, rumination involves repetitive and recurrent self-focused thinking, during which the individual has a tendency to negatively appraise his or her thoughts, feelings, behaviours and situations. Similarly, the retrieval of negative autobiographical memories during rumination may be a feature of post-event processing. The potential resemblance between rumination and post-event processing is further illustrated in Abbott and Rapee's (2002, 2004) and Edward's et al.'s (2003) research, where the term 'post-event rumination' was used when investigating the nature of post-event processing in social anxiety.

In view of the evidence for the dysfunctional effects of rumination, research into the mechanisms underlying rumination has attempted to answer the question as to why some people are more prone to ruminate more frequently and for longer periods of time than others. An important difference between normal and pathological thinking may be the response to intrusive thoughts (Watkins, in press). In terms of rumination, the sequence of recurrent thinking on a negative theme is often initiated by the occurrence of intrusive thoughts (Martin & Tesser, 1996). However, intrusive thoughts are a common and normal phenomenon (Rachman & de Silva, 1978; Wells & Morrison, 1994), such that the occurrence of an intrusive thought cannot solely

account for pathological rumination. In contrast, particular appraisals and strategies in response to intrusions may lead to recurrent negative thinking such as rumination. In light of the suggestion that rumination and post-event processing share common features, research into the mechanisms underlying rumination will now be considered, and the implications for social phobia will be discussed.

Rumination is initiated by discrepancies in progress towards goals that are appraised as personally important. For example, the appraisal of an intrusive thought as personally important is associated with tendency to ruminate (Martin & Tesser, 1996; Watkins, in press). Martin and Tesser (1996) further propose that rumination serves to reduce discrepancy in goal-attainment. Ruminative thinking is thus an attempt to find an alternative means of reaching unattained goals or of reconciling oneself for not reaching these goals. However, failure to resolve the ruminative thinking process may be maladaptive in that it can increase anxiety (Field, 2001) and eventually lead to learned helplessness, characterised by a loss of control and feelings of powerlessness (Martin & Tesser, 1996). Post-event processing may share similarities with the goal-discrepancy account of rumination: as social phobia is characterised by excessively high standards in social performance, and because the socially phobic individual invariably perceives that these standards will not be achieved, discrepancy in goal-attainment and ensuing rumination may be inevitable.

Recent accounts propose that metacognitive beliefs and appraisals, that is, judgement about the function and meaning of thinking itself, may also play a role in maintaining recurrent negative thinking (Watkins, in press; Watkins & Baracaia, 2001). The belief that rumination is helpful for understanding the self and the world may

maintain rumination, leading to the prediction that metacognitive beliefs about needing to understand situations will be associated with a greater tendency to ruminate (Lyubomirsky & Nolen-Hoeksema, 1993; Watkins, in press; Watkins & Baracaia, 2001). Recent research has demonstrated that individuals who ruminate often believe that it increases insight into the self in order to improve problem solving and reduce the potential for repeating mistakes in the future (Watkins, in press; Watkins & Baracaia, 2001). Although research into the metacognitive processes involved in post-event processing has yet to be investigated, metacognitive beliefs and appraisals may be similarly implicated in post-event processing. Indeed, research by both Rachman et al. (2000) and Field and Morgan (in press) reported that some individuals with high social anxiety actually found engaging in post-event processing helpful, suggesting that post-event processing may involve metacognitive beliefs about the need to confront perceived failures in social situations and facilitate reflective problem solving.

It is of note, however, that the application of the mechanisms underlying rumination to those of post-event processing is merely speculative at the present time. Although the concepts of rumination in depression and post-event processing in social anxiety appear to share common features, most notably the idea of repetitive thought focused on negative events, the extent to which the two constructs have unique and similar features remains to be established. Future research is therefore required in order to explore the similarities and differences in content and style, as well as in underlying processes.

5.6. Emotional Processing and Post-Event Processing

The concept of emotional processing was first introduced by Rachman in 1980 who put it forward as a promising explanatory concept with particular relevance and application to the anxiety disorders (Baker, Holloway, Thomas, Thomas, & Owens, in press). Rachman (1980) used the term emotional processing to refer to the way in which an individual processes stressful life events. He defined emotional processing as: "a process whereby emotional disturbances are absorbed, and decline to the extent that other experiences and behaviour can proceed without disruption" (p.51). Rachman noted that, for the most part, people successfully process the majority of aversive events that occur in their lives. He argued that if emotional experiences were incompletely absorbed or processed then certain direct signs of this failure would appear; for example, the return of fears, obsessions and intrusive thoughts. Ruminating that persists after an emotional event can also be viewed as a failure to complete emotional processing. Rachman proposed several factors that could impede emotional processing, including state factors (such as high arousal), personality factors (such as neuroticism), and avoidant behaviours.

Rachman et al. (2000) suggest that the intrusive nature of negative post-event thinking may interfere with information processing, and speculate on whether post-event processing may be considered as one form of emotional processing, or rather, a failure to satisfactorily process emotional information. A recent study by Abbott and Rapee (2002) provides support for the hypothesis that post-event processing is associated with failure to complete emotional processing. In their study, participants completed a post-event processing questionnaire in response to socially threatening, physically threatening, and depression-related events. Participants also rated the

degree of state emotion that they had experienced during the events themselves and completed trait measures of social anxiety, general anxiety, physical anxiety, depression and obsessive-compulsive symptoms. The results indicated that post-event processing is a common experience, and that it occurs in a broad range of situations that have the potential to elicit a strong emotional response. Furthermore, the best predictors of post-event processing following an emotional event were the degree of emotion experienced during the situation and levels of trait anxiety. These results are consistent with Rachman's (1980) model, which highlights a number of risk factors that increase the likelihood of an individual failing to complete emotional processing.

Abbott and Rapee (2002) argue that their findings have implications for tailoring clinical interventions and targeting clinical resources. They suggest that early intervention for individuals most at risk of emotional disturbance may serve to prevent further development of a broad range of psychopathology for at-risk individuals. Longitudinal research may further inform when to target clinical resources for such individuals by tracking the time course that emotional processing typically takes to resolve. It is noteworthy, however, that the generalisability of Abbott and Rapee's results to clinical groups is limited in that the study was conducted on a non-clinical sample. Future research is therefore required to elucidate the relative similarities and differences of models of post-event processing in clinical and non-clinical samples. Furthermore, as this research has not been replicated, further investigation of the similarities between post-event processing and emotional processing is also required. If further investigation reveals that the concepts of emotional processing and post-event processing share common features, Rachman et

al. (2000) hypothesise that it will allow us to transfer some of the knowledge about emotional processing to post-event processing, and thus provide greater insight into these processes.

6. The Way Forward? Implications for Future Research and Clinical Practice

In the Clark and Wells (1995) model of social phobia, post-event processing is conceptualised as an important maintaining factor in social phobia. They hypothesise that post-event processing is the final stage of processing following an anxiety-provoking social event for individuals with social phobia. To date, there is a small body of evidence that support the contention that post-event processing is determined by what occurs at earlier stages of processing. That is, social and performance situations that evoke harsher self-appraisals of performance result in more extensive, negatively valenced post-event processing. In this respect, the relationship between social anxiety and post-event processing may be conceptualised as 'a dynamic system'; negative post-event processing may be triggered by negative mental representations of the social-self whilst at the same time reinforcing that very same negative mental representation (Abbott & Rapee, 2004). The current methodology for investigating post-event processing is, however, limited. Replication of studies using clinical populations and the use of more ecologically valid paradigms is necessary if our understanding of post-event processing is to be advanced.

Where should we go from here? The final part of this review will raise a number of questions that require investigation in order to further advance our understanding of post-event processing and how it operates in social phobia.

A comprehensive understanding of the exact nature of post-event processing in social phobia remains to be established. Although literature from a number of theoretical perspectives (e.g., memory and attention bias, imagery and the use of the observer perspective, rumination in depression, and emotional processing) may provide clues into the nature of post-event processing, further research is required to clarify the relationships between these cognitive processes and post-event processing in more detail.

Increased insight into the exact nature of post-event processing may be further elucidated by examining the metacognitive processes that guide post-event processing. Metacognition refers to the psychological structures, knowledge, events and processes that are involved in the control, modification and interpretation of thinking itself (Wells & Cartwright-Hatton, 2004). According to recent theorising, meta-cognition is an important factor in the development and maintenance of psychological disorder (Wells, 2000). A basic tenet of this approach is that beliefs in psychological disorders consist of a metacognitive component that guides the activity of thinking and coping. More specifically, individuals have positive and negative beliefs about thinking that influences appraisals, and also have implicit procedural metacognitions that form plans or programs for guiding cognition and action. In terms of post-event processing, therefore, what are the metacognitive components that contribute to maladaptive response styles, which in turn may play a role in the development and maintenance of social anxiety?

A further point of consideration alludes to post-event processing being one of four processes that prevent individuals with social phobia from disconfirming their

negative beliefs about social situations. In order to advance the comprehensiveness of Clark and Wells' (1995) model, it may be useful to identify the connections between these four processes, and ascertain how they interact with the key maladaptive cognitions that individuals with social phobia bring into a social situation. Moreover, there is preliminary evidence to suggest that post-event processing may serve an adaptive function (Field & Morgan, in press; Rapee et al., 2000, Rushbrook, 2003). Although Clark and Wells (1995) may be correct in their assertion that post-event processing enhances anxiety regarding social situations, the model could be extended to incorporate the adaptive role that post-event processing may play. Future research could attempt to delineate when post-event processing is functional and when it is maladaptive.

The attainment of increased knowledge into the function and nature of post-event processing has important implications for therapeutic practice. The Clark and Wells (1995) model predicts that successful treatment should produce improvements in self-appraisals of performance. However, research has yet to evaluate whether cognitive-behavioural treatments for social phobia have any effect on reducing the occurrence of negative post-event processing. In view of its proposed theoretical importance in the maintenance of social anxiety, it would be interesting to investigate the effects of current treatments on post-event processing. Furthermore, enhanced insight into the nature of post-event processing may lead to the development of new treatment options, providing a more effective approach to treating social phobia.

To conclude, this review of post-event processing in social anxiety and social phobia suggests that there is a growing body of evidence showing that post-event processing

has an important role to play in maintaining social anxiety. However, in view of the paucity of empirical research to date, our current understanding of the nature and characteristics of post-event processing is still in its infancy. In order to advance our understanding of this post-event processing, we need to further examine the current conceptualisation of this process, as well as empirically testing a number of questions that are raised by Clark and Wells' (1995) model. Future research would benefit from further identifying and subsequently elucidating the relationships between the cognitive processes that are characteristic of post-event processing, and in specifying the nature of therapeutic interventions that help to modify them.

References

Abbott, M.J., & Rapee, R.M. (2002). *Rumination in response to social threat, physical threat, and depression-related events*. Manuscript submitted for publication.

Abbott, M.J., & Rapee, R.M. (2004). Post-event rumination and negative self-appraisal in social phobia before and after treatment. *Journal of Abnormal Psychology*, *113*, 136-144.

Alden, L.E., & Beiling, P. (1998). Interpersonal consequences of the pursuit of safety. *Behaviour Research and Therapy*, *36*, 53-65.

Alden, L.E., Beiling, P., & Meleshko, K.G. (1995). An interpersonal comparison of depression and social anxiety. In K.D. Craig & K.S. Dobson (Eds.). *Anxiety and depression in adults and children* (pp.57-81). Thousand Oaks, CA: Sage Publications.

Alden, L.E., & Wallace, S.T. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research and Therapy*, *36*, 53-65.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders – DSM-IV*. Washington, DC: Author.

Amir, N., Foa, E.B., & Coles, M.E. (2000).implicit memory bias for threat-relevant information in individuals with generalised social phobia. *Journal of Abnormal Psychology, 109*, 713-720.

Amir, N., Foa, E.B., & Coles, M.E. (1998). Negative interpretation bias in social phobia. *Behaviour Research and Therapy, 36*, 945-957.

Baker, R., Holloway, J., Thomas, P.W., Thomas, S., & Owens, M. (in press). Emotional processing and panic. *Behaviour Research and Therapy.*

Beck, A.T., Emery, G., & Greenberg, R. (1985). *Anxiety disorders and phobias: A cognitive perspective.* New York: Basic Books.

Beck, A.T., Laude, R., & Bohnert, M. (1974). Ideational components of anxiety neurosis. *Archives of General Psychiatry, 31*, 319-325.

Becker, E.S., Roth, W.T., Andrich, M., & Margraf, J. (1999). Explicit memory in anxiety disorders. *Journal of Abnormal Psychology, 108*, 153-163.

Brown, T.A., & Barlow, D.H. (1992). Comorbidity among anxiety disorders: implications for treatment and DSM-IV. *Journal of Consulting and Clinical Psychology, 60*, 835-844.

Bruch, M.A., Mattia, J.I., Heimberg, R.G., & Holt, C.S. (1993). Cognitive specificity in social anxiety and depression: Supportive evidence and qualifications due to affective confounding. *Cognitive Therapy and Research, 17*, 1-21.

Butler, G., & Mathews, A. (1983). Cognitive processes in anxiety. *Advances in Behaviour Research and Therapy, 5*, 51-62.

Chapman, T.F., Manuzza, S., & Fyer, A.J. (1995). Epidemiology and family studies of social phobia. In R.G. Heimberg, M.R. Liebowitz, D.A. Hope, & F.R. Schneier (Eds.) *Social phobia: Diagnosis,* assessment *and treatment* (pp. 21-40). New York: Guildford Press.

Chen, Y.P., Ehlers, A., Clark, D.M., & Mansell, W. (2002). Patients with generalized social phobia direct their attention away from faces. *Behaviour Research & Therapy, 40*, 677-687.

Clark, D.M. (1999). Anxiety disorders: why they persist and how to treat them. *Behaviour Research and Therapy, 37*, S5-S27.

Clark, D.M. (2001). A cognitive perspective on social phobia. In W.R. Crozier & L.E. Last (Eds.). *International handbook of social anxiety: Concepts, research and interventions relating to the self and shyness*. Chichester: Wiley.

Clark, D.M, & Beck, A.T. (1988). Cognitive Approaches. In C.G. Last & M. Hersen (Eds.). *Handbook of Anxiety Disorders* (pp. 362-385). New York: Pergamon.

Clark, D.M., & McManus, F. (2002). Information processing in social phobia. *Biological Psychiatry*, *51*, 92-100.

Clark, D.M., & Wells, A. (1995). A cognitive model of social phobia. In R. Heimberg, M. Liebowitz, D.A. Hope, & F.R. Schneier (Eds.) *Social phobia: Diagnosis, assessment and treatment* (pp. 69-93). New York: Guildford Press.

Cloitre, M., Cancienne, J., Heimberg, R.G., Holt, C.S., & Liebowitz, M. (1995). Case histories and shorter communications. Memory bias does not generalise across anxiety disorders. *Behaviour Research and Therapy*, *33*, 305-307.

Edwards, S.L., Rapee, R.M., & Franklin, J. (2003). Post-event rumination and recall bias for a social performance event in high and low socially anxious individuals. *Cognitive Therapy and Research*, *27*, 603-617.

Ehlers, A., & Clark, D.M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, *38*, 319-345.

Erwin, B.A., Heimberg, R.G., Juster, H., & Mandlin, M. (2002) Comorbid anxiety and mood disorders among persons with social anxiety disorder. *Behaviour Research and Therapy*, *40*, 19-35.

Field, A.P. (2001). *Just think what could have happened: ruminative thought and catastrophizing in phobics.* British Psychological Society Centenary Annual Conference, S.E.C.C., Glasgow (28th March – 1st April. In A.P. Field & J. Morgan

(in press). Post-event processing and the retrieval of autobiographical memories in socially anxious individuals. *Behaviour Research and Therapy*.

Field, A.P., & Morgan, J. (in press). Post-event processing and the retrieval of autobiographical memories in socially anxious individuals. *Behaviour Research and Therapy*.

Foa, E.B., Franklin, M.E., Perry, K.J., & Herbert, J.D. (1996). Cognitive biases in generalised social phobia. *Journal of Abnormal Psychology*, *105*, 433-439.

Furmark, T., Tillfors, M., Everz, P-O., Marteinsdottir, I., Gefvert, O., Fredrikson, M. (1999). Social phobia in the general population: Prevalence and sociodemographic profile. *Social Psychiatry and Psychiatric Epidemiology*, *34*, 416-424.

Hackmann, A. (1998). Working with images in clinical psychology. In A.S. Bellack & M. Hersen (Eds.). *Comprehensive clinical psychology*. Oxford: Elsevier.

Hackmann, A., Clark, D.M., & McManus, F. (2000). Recurrent images and early memories in social phobia. *Behaviour Research and Therapy*, *38*, 601-610.

Harvey, A.G., Clark, D.M., Ehlers, A., & Rapee, R.M.. (2000). Social anxiety and self impression: cognitive preparation enhances the beneficial effects of video feedback following a stressful social task. *Behaviour Research and Therapy*, *38*, 1183-1192.

Hazen, A.L., & Stein, M.B. (1995). Clinical phenomenology and comorbidity. In M.B. Stein (Ed.). *Social phobia: Clinical and research perspectives*. Washington DC: American Psychiatric Press.

Hinrichsen, H., & Clark, D.M. (1999). Anticipatory processing in social anxiety. Presented at the European Association of Behavioural and Cognitive Therapies; 11-15 September, Bresden, Germany. In D.M. Clark & F. McManus (2002). Information processing in social phobia. *Biological Psychiatry*, *51*, 92-100.

Hirsch, C.R., & Mathews, A. (1997). Interpretive inferences when reading about emotional events. *Behaviour Research & Therapy*, *35*, 1123-1132.

Hirsch, C.R., & Mathews, A. (2000). Impaired inferential bias in social phobia. *Journal of Abnormal Psychology*, *109*, 705-712.

Holt, C.S., Heimberg, R.G., & Hope, D.A. (1992a). Avoidant personality disorder and the generalized subtype of social phobia. *Journal of Abnormal Psychology, 101*, 318-325.

Holt, C.S., Heimberg, R.G., Hope, D.A., & Liebowitz, M.R. (1992b). Situational domains of social phobia. *Journal of Anxiety Disorders*, *6*, 63-77.

Hope, D.A., Rapee, R.M., Heimberg, R.G., & Dombeck, M.J. (1990). Representations of the self in social phobia: Vulnerability to social threat. *Cognitive Therapy and Research*, *14*, 198-208.

Horowitz, M. (1970). *Image formation and cognition.* New York: Appleton-Century-Crofts. In J.M. Spurr & L. Stopa (2002). Self-focused attention in social phobia and social anxiety. *Behaviour Research and Therapy, 22*, 947-975.

Leary, M.R., Kowalski, R.M., & Campbell, C.D. (1988). Self-presentational concerns and social anxiety: The role of generalized impression expectancies. *Journal of Research in Personality, 22*, 308-321.

Lucock, M.P., & Salkovsis, P.M. (1988). Cognitive factors in social anxiety and its treatment. *Behaviour Research and Therapy, 26*, 297-302.

Lundh, L.G., & Ost, L.G. (1996). Recognition bias for critical faces in social phobics. *Behaviour Research and Therapy, 34*, 787-794.

Lundh, L., & Ost, L. (1997). Explicit and implicit memory bias in social phobia. The role of subdiagnostic type. *Behaviour Research and Therapy, 35*, 305-317.

Lyubomirsky, S., Caldwell, N.D., & Nolen-Hoeksema, S. (1998). Effects of ruminative and distracting responses to depressed mood on retrieval of autobiographical memories. *Journal of Personality and Social Psychology, 75*, 166-177.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology, 65*, 339-349.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem-solving. *Journal of Personality and Social Psychology*, *69*, 176-190.

MacLeod, A., & Byrne, A. (1996). Anxiety, depression, and the anticipation of future positive and negative experiences. *Journal of Abnormal Psychology*, *105*, 286-289.

Magee, W.J., Eaton, W.W., Wittchen, H.U., McGonagle, K.A., & Kessler, R.C. (1996). Agoraphobia, simple phobia, and social phobia in the National Comorbidity Survey. *Archives of General Psychiatry*, *53*, 159-168.

Mansell, W., & Clark, D.M. (1999). How do I appear to others? Social anxiety and the processing of the observable self. *Behaviour Research and Therapy*, *37*, 419-434.

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

Mansell, W., Clark, D.M., Ehlers, A., & Chen, Y.P. (1999). Social anxiety and threat away from emotional faces. *Cognition and Emotion*, *13*, 673-690.

Manuzza, S., Schneier, F.R., Chapman, T.F., Liebowitz, M.R., Klein, D.F., & Fyer, A.J. (1995). Generalized social phobia: Reliability and validity. *Archives of General Psychiatry*, *52*, 230-237.

Martin, L.L., & Tesser, A. (1996). Some ruminative thoughts. In R.S. Wyer (Ed.), *Advances in social cognition* (pp 1-47). Hillsdale, NJ: LEA.

Mellings, T.M.B., & Alden, L.E. (2000). Cognitive processes in social anxiety: The effects of self-focus, rumination and anticipatory processing. *Behaviour Research and Therapy*, *38*, 243-257.

Mogg, K., Philippot, P., & Bradley, B.P. (2004). Selective attention to angry faces in clinical social phobia. *Journal of Abnormal Psychology*, *113*, 160-165.

Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, *58*, 519-527.

Mulkens, S., de Jong, P.J., Dobbelaar, A., & Bogels, S.M. (1999). Fear of blushing: Fearful preoccupation irrespective of facial coloration. *Behaviour Research and Therapy*, *37*, 1119-1128.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, *100*, 569-582.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, *109*, 504-511.

Nolen-Hoeksema, S., Larson, J., & Grayson, C. (1999). Explaining the gender difference in depressive symptoms. *Journal of Personality and Social Psychology*, *77*, 1061-1072.

Nolen-Hoeksema, S., & Morrow, J. (1993). Effects of rumination and distraction on naturally occurring depressed mood. *Cognition and Emotion*, *7*, 561-570.

Pollard, C.A., & Henderson, J.G. (1988). Four types of social phobia in a community sample. *Journal of Nervous and Mental Disease*, *176*, 440-445.

Rachman, S. (1980). Emotional processing. *Behaviour Research and Therapy*, *18*, 51-60.

Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, *16*, 233-238.

Rachman, S., Gruter-Andrew, J., & Shafran, R. (2000). Post-event processing in social anxiety. *Behaviour Research and Therapy*, *38*, 611-617.

Rapee, R.M. (1995). Descriptive psychopathology of social phobia. In R.G. Heimberg, M.R. Liebowitz, D.A. Hope, & F.R. Schneier (Eds). *Social phobia: Diagnosis, assessment, and treatment* (pp. 41-66). New York: The Guildford Press.

Rapee, R.M., & Heimberg, R.G. (1997). A cognitive-behavioural model of anxiety in social phobia. *Behaviour Research and Therapy*, *35*, 741-756.

Rapee, R.M., & Lim, (1992). Discrepancy between self- and observer ratings of performance in social phobics. *Journal of Abnormal Psychology*, *101*, 728-731.

Rapee, R.M., McCallum, S.L., Melville, L.F., Ravenscroft, H., & Rodney, J.M. (1994). Memory bias in social phobia. *Behaviour Research and Therapy*, *32*, 89-99.

Rapee, R.M., Sanderson, W.C., & Barlow, D.H. (1988). Social phobia features across the DSM-III-R anxiety disorders. *Journal of Psychopathology and Behavioral Assessment*, *10*, 287-299.

Reich, J., Goldenberg, I., Vasile, R., Goisman, R., & Keller, M. (1994). A prospective follow-along study of the course of social phobia. *Psychiatry Research*, *54*, 249-258.

Rushbrook, S.C. (2003). *Post-event processing: Effects on social anxiety and performance.* Manuscript submitted for Doctoral Thesis, University of Southampton.

Safren, S.A., Heimberg, R.G., & Juster, H.R. (1997). Client expectancies and their relationship to pretreatment symptomatology and outcome of cognitive-behavioral group treatment for social phobia. *Journal of Consulting and Clinical Psychology*, *65*, 694-698.

Salkovskis P.M. (1991). The importance of behaviour in the maintenance of anxiety and panic: a cognitive account. *Behavioural Psychotherapy*, *19*, 6-19.

Schneier, F.R., Johnson, J., Hornig, C.D., Liebowitz, M.R., & Weissman, M.M. (1992). Social phobia: Comorbidity and morbidity in an epidemiological sample. *Archives of General Psychiatry*, *49*, 282-288.

Spurr, J. M., & Stopa, L. (2002). Self-focused attention in social phobia and social anxiety. *Behaviour Research and Therapy*, *22*, 947-975.

Stopa, L., & Clark, D.M. (1993). Cognitive processes in social phobia. *Behaviour Research and Therapy*, *31*, 255-267.

Stopa, L., & Clark, D.M. (2000). Cognitive processes in social phobia. *Behaviour Research and Therapy*, *38*, 273-283.

Stopa, L., & Clark, D.M. (2001). Social Phobia: Comments on the viability and validity of an analogue research strategy and British norms for the Fear of Negative Evaluation questionnaire. *Behavioural and Cognitive Psychotherapy*, *29*, 423-430.

Teasdale, J.D., & Barnard, P.J. (1993). *Affect, Cognition and Change*. Hove, UK: Erlbaum.

Watkins, E. (in press). Appraisals and strategies associated with rumination and worry. *Personality and Individual Differences*.

Watkins, E., & Baracaia, S. (2001). Why do people ruminate in dysphoric moods? *Personality and Individual Differences*, *30*, 723-734.

Wells, A. (2000). *Emotional disorders and metacognition: Innovative cognitive therapy*. Chichester, UK: Wiley.

Wells, A., & Cartwright-Hatton, S. (2004). A short form of the metacognitions questionnaire: properties of the MCQ-30. *Behaviour Research and Therapy*, *42*, 385-396.

Wells, A., Clark, D.M., & Ahmad, S. (1998). How do I look with my minds eye: perspective taking in social phobic imagery. *Behaviour Research and Therapy*, *36*, 631-634.

Wells, A., & Morrison, A.P. (1994). Qualitative dimensions of normal worry and normal obsessions: a comparative study. *Behaviour Research and Therapy*, *32*, 867-870.

Wells, A., & Papageorgiou, C. (2001). Social phobic interoception: effects of bodily information on anxiety, beliefs and self-processing. *Behaviour Research and Therapy*, *39*, 1-11.

Wenzel, A., & Holt, C.S. (2002). Memory bias against threat in social phobia. *British Journal of Clinical Psychology, 41*, 73-79.

Wittchen, H.U., Stein, M.B., & Kessler, R.C. (1999). Social fears and social phobia in a community sample of adolescents and young adults: Prevalence, risk factors and comorbidity. *Psychological Medicine*, *29*, 309-323.

Empirical Paper

Post-Event Processing in social anxiety

Laura Dannahy

Prepared for submission to Behaviour Research and Therapy (see Appendix B)

Post-Event Processing in Social Anxiety

Laura Dannahy

Department of Psychology

University Of Southampton

Author Key Words:

Social phobia, social anxiety, post-event processing

Running Head

Post-Event Processing

Address correspondence to: Laura Dannahy, Department of Clinical Psychology, University of Southampton, Highfield, Southampton. SO17 1BJ, UK.

Abstract

The cognitive model of social phobia by Clark and Wells (1995) proposes that following a social event, individuals with social phobia will engage in post-event processing, during which they conduct a detailed review of the event. This study investigated the relationship between self-appraisals of performance and post-event processing in individuals high and low in social anxiety. Participants appraised their performance immediately after a conversation with an unknown individual and prior to an anticipated second conversation task one week later. The frequency and valence of post-event processing during the week following the conversation was also assessed. The study also explored differences in the metacognitive processes of high and low socially anxious participants. The high socially anxious group were found to experience more anxiety, predict worse performance, underestimate their actual performance, and engage in more post-event processing than low socially anxious participants. The degree of negative post-event processing was linked to the extent of social anxiety and negative appraisals of performance, both immediately after the conversation task and one week later. Differences were also observed in some metacognitive processes. The results are discussed in relation to current theory and previous research.

1. Introduction

Social phobia is a common and disabling anxiety disorder (Harvey, Clark, Ehlers, & Rapee, 2000), characterised by an intense concern about evoking negative reactions from others during social interactions (Stravynski, Bond, & Amado, in press). According to recent theoretical models of social phobia, individuals with social phobia attach fundamental importance to being positively appraised by others, yet experience marked insecurity regarding their ability to convey a favourable impression of themselves to others. As a consequence, individuals with social phobia believe that their social behaviour will have disastrous consequences, such as humiliation or rejection (Clark & Wells, 1995; Rapee & Heimberg, 1997).

The Clark and Wells (1995) model of social phobia identifies four processes that contribute to the maintenance of this anxiety: self-schemata, self-focused attention, in-situation safety behaviours, and anticipatory and post-event processing. This study focuses on one part of the fourth maintaining factor, post-event processing. According to the Clark and Wells model, post-event processing refers to the tendency for individuals with social phobia to engage in a detailed review or 'post-mortem' of events following a social interaction. Clark and Wells (1995) argue that the cognitive content and associated affect of post-event processing is guided by the thoughts and feelings that were processed during the event itself. During post-event processing, individuals with social phobia typically become preoccupied with anxious feelings and negative self-perceptions, and ambiguous information is re-interpreted as negative (Stopa & Clark, 2000), leading to greater levels of anxiety and shame (Clark & Wells, 1995). Clark and Wells' (1995) conceptualisation of

post-event processing is therefore similar to Rapee and Heimberg's (1997) suggestion that retrospective rumination generates and maintains social anxiety. According to Rapee and Heimberg (1997), retrospective rumination is characterised by information elicited from external and internal cues during the social event itself, together with the recollection of perceived past failures. Similar to Clark and Wells' (1995) model, retrospective rumination is hypothesised to perpetuate maladaptive cognitions and lower anticipation for success in future social interactions.

Although post-event processing has recently been the focus of theoretical attention, relatively few empirical studies have investigated post-event processing in social phobia and social anxiety. Rachman, Gruter-Andrew, and Shafran (2000) investigated the content, characteristics, and consequences of post-event processing in high and low socially anxious participants. Rachman et al.'s (2000) findings support Clark and Wells' (1995) account of post-event processing in that following a social situation, level of social anxiety was strongly correlated with the degree of self-reported post-event rumination following a social event. The content of the ruminative thoughts was described as recurrent and intrusive, and interfered with the individual's ability to concentrate, presumably by capturing and maintaining the focus of attention. A later replication by Abbott and Rapee (2002) showed much the same effects, with the best predictors of post-event processing following a social event being the degree of state anxiety experienced during the situation and levels of trait anxiety. Research using more experimental designs with non-clinical samples has similarly demonstrated that socially anxious individuals engage in significantly more negative post-event processing about their performance following a social

situation compared to individuals low in social anxiety (Edwards, Rapee, & Franklin, 2003; Mellings & Alden, 2000).

The Clark and Wells (1995) model predicts a specific relationship between self-appraisal of performance in social situations and the frequency and valence of subsequent post-event processing. That is, the more negatively one perceives one's performance, the greater the frequency of negative post-event processing. Although empirical research has demonstrated that socially anxious individuals underestimate their performance and overestimate the appearance of negative behaviours relative to individuals with low social anxiety and independent observers (Mellings & Alden, 2000; Rapee & Lim, 1992; Stopa & Clark, 1993), few studies have directly investigated the relationship between subjective appraisals of performance and post-event processing in social anxiety and social phobia. One study that did investigate this relationship asked participants to perform an impromptu speech task (Abbott & Rapee, 2004). Participants were asked to judge their performance immediately after the speech, and one week later, in order to assess the effects of performance. Abbott and Rapee (2004) showed that individuals with social phobia maintain negative appraisals of performance during the intervening week. This contrasted with the non-clinical group, who became more positive about their performance over time. Individuals with social phobia also engaged in more negative rumination than controls, with the best predictors of rumination being social anxiety symptom severity and self-appraisals of performance.

Another empirical study that investigated post-event processing (Rushbrook, 2003) looked at its impact on subjective levels of distress following a speech task,

anticipation of a second speech task, and on actual and perceived performance in high and low socially anxious participants. Rushbrook's (2003) findings provide mixed support for Clark and Wells' (1995) conceptualisation of post-event processing. Consistent with Clark and Wells' (1995) model, high socially anxious participants predicted worse performance, had more negative thoughts, and reported more anxiety in the post-event processing condition, compared to low socially anxious participants. However, predictions of performance improved over time in the post-event processing condition. This contradicts Clark and Wells (1995), who suggest that post-event processing contributes to biased processing of information, exacerbates negative thinking, and maintains a negative self-image. It is possible, however, that a number of methodological limitations may account for these results (e.g. the post-event processing condition may not have elicited the required levels of distress or allowed sufficient time for individuals to engage in post-event processing).

Although the empirical research into post-event processing to date has largely provided support for its role in the maintenance of social anxiety and social phobia, there is, however, limited research into the mechanisms underlying post-event processing. Recent accounts propose that metacognitive beliefs and appraisals may also play a role in maintaining recurrent negative thinking (Watkins, in press; Watkins & Baracaia, 2001). Metacognition refers to the psychological structures, knowledge, events and processes that are involved in the control, modification and interpretation of thinking itself (Wells & Cartwright-Hatton, 2004), and is thought to be an important factor in the development and maintenance of psychological disorder (Wells, 2000). More specifically, individuals have positive and negative beliefs about

thinking that influences appraisals. Individuals also have implicit procedural metacognitions that form plans or programs for guiding cognition and action. Research into rumination in depression has demonstrated that individuals who ruminate often believe that it increases insight into the self in order to improve problem solving and reduce the potential for repeating mistakes in the future (Watkins, in press; Watkins & Baracaia, 2001). Although research into the metacognitive processes involved in post-event processing has yet to be investigated, metacognition may be similarly important in post-event processing. Research by both Rachman et al. (2000) and Field and Morgan (in press) reported that individuals with high social anxiety may find post-event processing helpful, and these results suggest that post-event processing may involve metacognitive beliefs about the need to confront perceived failures in social situations and facilitate reflective problem solving.

The present study is a partial replication and extension of Abbott and Rapee's (2004) study. In contrast to Abbott and Rapee's (2004) use of a speech task, the present study aimed to investigate post-event processing using an ecologically valid paradigm with maximum relevance to social anxiety. A 'getting acquainted' conversation with an unknown individual was therefore selected because such situations are necessary first steps in forming friendships, and can be problematic for socially anxious individuals (Alden & Wallace, 1995; Stravynski & Shahar, 1983). Similar to Abbott and Rapee (2004), an aim of the study was to investigate the relationship between self-appraisals of performance and post-event processing in social anxiety, and to investigate the effects of time on the frequency and valence of post-event processing. The present study also aimed to build upon the research

findings of Abbott and Rapee (2004) by investigating the effect of post-event processing on perceived performance in a future social interaction. Participants high and low in social anxiety were informed that they would be required to partake in two conversation tasks, one week apart, with an unknown individual. Participants were subsequently asked to rate their performance and complete the post-event processing questionnaire used in the Abbott and Rapee (2004) study both immediately after the first conversation and again prior to the anticipated second conversation. Further to Abbott and Rapee's (2004) study, participants also completed a daily questionnaire designed to investigate the frequency and valence of post-event processing in the week between the first and the anticipated second conversation.

A final aim of the present study was to explore differences in the metacognitive processes of individuals high and low in social anxiety; a factor that has not yet been investigated in studies of post-event processing. Two dimensions of metacognition were investigated, including 1) beliefs about cognitions that occur during post event-processing and 2) cognitive self-consciousness (i.e. the tendency to be aware and monitor thinking).

The study was designed to test a number of hypotheses. Consistent with both Clark and Wells' (1995) model and previous research, it was hypothesised that high socially anxious participants would predict worse performance, underestimate actual performance, and overestimate the appearance of negative behaviours compared both to individuals low in social anxiety and to their conversation partner. Second, it was hypothesised that socially anxious participants would engage in more post-event

processing than low socially anxious participants, and that the content of this processing would be more negative. It was also predicted that high socially anxious participants would engage in post-event processing for a longer period of time. This hypothesis was derived from Clark and Wells' (1995) suggestion that post-event processing is perpetuated by anticipatory processing prior to a pending social situation.

A third hypothesis was that high socially anxious participants would rate their performance more negatively over time. This hypothesis was based upon Clark and Wells' (1995) suggestion that self-appraisals of performance may worsen for individuals who are highly socially anxious as a result of negative post-event processing and the recall of past perceived failures. It was also hypothesised that there would be a significant correlation between social anxiety, negative appraisals of performance and the frequency of negative post-event processing following the conversation.

Finally, it was hypothesised that compared to low socially anxious participants, high socially anxious participants would exhibit higher scores on all dimensions of metacognition regarding social situations. This hypothesis was based upon Morrison and Wells' (2003) suggestion that metacognitions are associated with psychological disturbance, in that they generate and maintain biases in information processing (Wells & Matthews, 1994).

2. Method

2.1. Participants

One hundred and thirty two undergraduate students from the University of Southampton were screened using the Fear of Negative Evaluation Scale (FNES: Watson & Friend, 1969). High and low socially anxious groups were selected using cut offs of 20 or above (high social anxiety group) or 8 or below (low social anxiety group), as recommended by Stopa and Clark (2001). Fifty participants took part in the study in exchange for either course credit or a small payment: The high socially anxious group (n=25; 2 males, 23 females) had a mean FNES score of 23.92 (SD =3.00), and the low socially anxious group (n=25; 4 males, 21 females) had a mean FNES score of 4.92 (SD = 1.91). As expected, there was a significant difference in FNES scores between groups, $t(41) = 26.71$, $p < .01$. There were no significant differences in age between the two groups (High anxious $M = 20.28$, $SD = 3.36$; Low anxious $M = 21.84$, $SD = 5.72$), $t(39) = 1.18$, $p = .25$, or in gender composition, $\chi^2(4, N = 50) = 0.76$, $p = .38$.

2.2. Experimental Design

The study used a mixed factorial design. There was one between-subjects variable (social anxiety). Within-subjects variables included time (before social interaction, immediately after social interaction, and before anticipated 2nd interaction), and rater (stooge, participant). The dependent variables measured affect, performance, frequency and valence of post-event processing).

2.3. Measures

2.3.1. *Fear of Negative Evaluation Scale (FNES; Watson & Friend, 1969).*

The FNES measures the degree to which people are fearful of the prospect of negative evaluation and reflects overt manifestations of that fear (Erwin, Heimberg, Juster, & Mindlen, 2002). The FNES is a 30-item true-false questionnaire which measures trait social-evaluative anxiety. Items include "I am frequently afraid of other people noticing my short-comings", "I am usually worried about what kind of impression I make". The FNES has high internal consistency (α=0.94), good test-retest reliability (r=0.78), and good discriminant validity (p<0.01) when compared with a measure of social desirability (Crowne-Marlowe Scale; Crowne & Marlowe, 1964) on a sample of undergraduates (Watson & Friend, 1969). Studies have also shown that high and low FNES groups produce results that are similar to comparisons between individuals with social phobia and controls (Stopa & Clark, 2001).

2.3.2. *State Anxiety Scale*

Anxiety ratings were completed using 0 (*no anxiety*) to100 (*extreme anxiety*) visual analogue scales to indicate how anxious participants felt about the conversation task. Anxiety ratings were completed immediately before and after the conversation task, and before the anticipated second conversation task.

2.3.3. *Prediction of Performance Scale*

Participants were asked to predict how well they would perform immediately before the conversation tasks on a 0 (*I will not perform well at all*) to 100 (*I will perform*

extremely well) visual analogue scale. Participants were also asked to rate how well they thought that they had actually performed immediately after the conversation task using the same scale.

2.3.4. *Social Performance Rating Scale (SPRS).*

A modified version of the Social Performance Rating Scale (Fydrich, Chambless, Perry, Buergener, & Beazley, 1998) was used to measure the quality of social performance in the conversation. Two versions of this questionnaire were used in the study: one measured self-rating of performance, the other allowed the stooge to rate the participant's performance. The two versions differed in that the participant's version of the SPRS was written in the 1st person (e.g. "I completely avoided looking / stared continually, at the other person"), whereas the stooge's version (SPRS-Stooge) substituted the words "*the participant*" for "*I*", and "*me*" for "*the other person*" (e.g. "The participant completely avoided looking / stared continually at me").

The SPRS is a 5-item questionnaire measuring discrete social skills required in a social situation. The SPRS has been validated as a reliable tool, with acceptable internal consistency (α=0.72), excellent inter-rater reliability (r=1.00), and good convergent validity (p<0.001) when compared to measures of social anxiety and shyness (Fydrich et al., 1998). Positive ratings of appropriate levels of behaviour, and negative ratings of too much (e.g. stares at the conversational partner) or too little of a behaviour (e.g. avoids eye contact completely) are measured using a 5-point scale. Total Scores range from 5-25, with higher scores indicating more skilled social interaction. The 5 items rated include "Gaze" (considers appropriate levels of

eye contact), "Voice Quality" (includes ratings of tonal quality, pitch, clarity, and volume), "Length" (includes ratings of appropriate talk time and pauses in the conversation), "Discomfort" (considers factors such as posture and gestures), and "Conversation Flow" (includes ratings of appropriate self-disclosure, as well as turn-taking, showing interest in the partner, and tracking the conversation). See Appendix C.

2.3.5. *Thoughts Questionnaire*

The Thoughts Questionnaire, modified from Edwards, Rapee, and Franklin (2003), was used to measure post-event processing both immediately after and one-week after the conversation (see Appendix C). The measure consists of 29 items, and asks participants how frequently they thought about various aspects of their speech immediately after / during the week following their conversation task. Participants responded to items using a 5-point scale ranging from 0 (*Never*) to 4 (*Very Often*). The Thoughts Questionnaire comprises two scales including 11 positive rumination items (e.g., "My interaction was good", "The other person was interested in what I had to say"), and 16 negative rumination items (e.g., "I made a fool of myself"; "I didn't make a good impression"). The positive rumination scale ranges from 0 to 44, and the negative rumination scale ranges from 0 to 64; higher scores indicate more frequent post-event processing. Two general items regarding the conversation are also included ("Other aspects of the situation"; and "The situation overall"). Cronbach's alpha for the negative, positive and total subscales has indicated acceptable to excellent internal consistency (Edwards et al., 2003). It is noteworthy that this scale was used in the present study to measure the degree of post-event

processing related to a specific social-evaluative task, and not to levels of post-event processing in general.

2.3.6 *Daily Thoughts Questionnaire (DTQ)*

The DTQ is a daily rating scale that was designed to measure the degree to which the participant ruminated on the conversation during the day. The DTQ comprises two scales including 3 positively valenced items (e.g. "How well I handled the task"), and 5 negative items (e.g. "How bad my interaction was"). The positive rumination score ranges from 0-12, and the negative rumination score ranges from 0-20: higher scores indicate more frequent rumination. Two general items pertaining to other aspects of the conversation task are also included in the DTQ ("Thoughts about the conversation task during the day" and "Other aspects of the situation"). Items are scored on a 5-point scale ranging from 0 (*Never*) to 4 (*Very Often*). The total DTQ score ranges from 0-40; a higher score indicates more post-event rumination. See Appendix C.

2.3.7. *Metacognitions Questionnaire*

A metacognitions questionnaire, adapted from Cartwright-Hatton and Wells (1997) Metacognitions Questionnaire, was used to measure beliefs about cognitions that occur during post-event processing. The questionnaire assessed two dimensions of metacognition, and used a 5-point scale ranging from 0 (*Do not agree*) to 5 (*Totally Agree*). The two dimensions comprised 1) beliefs regarding the degree to which thinking helps problem-solving (e.g. "If I did not think about the social situation, I would make mistakes in future social situations") and negative beliefs about the controllability of thoughts (e.g. "I find it difficult to control my thoughts following a

social situation"), and 2) cognitive self-consciousness (e.g. "I think a lot about my performance in social situations"). A measure of imagery was also included. The problem-solving score ranges from 1-30, the beliefs about controllability score ranges from 1-40, the cognitive self-consciousness score ranges from 1-20, and the imagery score ranges from 1-5. Higher scores indicate greater conviction in the metacognitive component. See Appendix C.

2.3.8. *Ruminative Responses subscale of the Response to Depression Questionnaire (RDQ, Nolen-Hoeksema & Morrow, 1991).*

The Ruminative Responses subscale of the RDQ was used to examine ruminative style. The questionnaire consists of 22 items assessing responses to depressed mood that are self-focused, symptom-focused, or focused on possible causes and consequences of the depressed mood. Items are scored on 4-point Likert scales, ranging from 1 (*Almost Never*) to 4 (*Almost Always*). The total RDQ ranges from 22-88, with high scores indicating a greater degree of negative rumination.

2.3.9. *Beck Depression Inventory (BDI-II, Beck, Steer, & Garbin, 1996).*

The BDI-II is a 21-item inventory that measures the severity of depression for adolescents and adults during the past week. Research has shown that the BDI-II has good internal consistency, reliability and validity (Beck et al., 1996). Dysphoric mood has been linked to anxiety (Nolen-Hoeksema, 2000) and may influence post-event processing (Abbott & Rapee, 2002). The BDI was included to examine whether any effects observed in the present study were due to dysphoria rather than social anxiety.

2.4. Stooges

Two female post-graduate research students, blind to the participant's group status and to the specific hypotheses of the study, served as experimental stooges. They were trained to engage in consistent behaviour across participants. In line with Veljaca and Rapee's (1998) suggestions, the stooges maintained a reserved but not unfriendly manner throughout the conversation task, and looked at the participant for the majority of the conversation. The purpose of this behaviour was to portray neither overtly positive nor overtly negative behaviours. The stooges were instructed not to give any feedback to participants regarding their performance. Prior to the present study, the experimental stooges were also given training in the SPRS rating system in order to maximise consistency between raters.

2.5. Materials

The conversation was recorded using a VHS video camera, and was timed using a stop-clock.

2.6. Procedure[1]

The study took place over two sessions, seven days apart. At the first session, participants were informed about the nature of the study and signed a consent form (see Appendix D). Next they were presented with the following instructions:

> I would like you to take part in a conversation with a person who is waiting for you in the room next door. Your task is to try to acquaint yourself with this person, similar to what you may do when meeting someone for the first

[1] Ethical approval was obtained prior to the study from the University of Southampton Psychology Department Ethics Committee.

> time. The conversation will last for at least 5 minutes, and you will be recorded using a video tape. Following the conversation, you will be rated by the other person on your performance.

Following the instructions, participants completed the state anxiety visual analogue scale and the prediction of performance scale. The participant was then taken into an adjacent room and introduced to the stooge. The participant sat in a chair facing the stooge, who was seated approximately 1 metre away. The video camera was positioned to the right of the stooge, so that it was visible to the participant. The experimenter left the room.

At the end of the conversation, participants were asked to rate levels of state anxiety and predict how well they had performed, and to complete the SPRS and the Thoughts Questionnaire. The stooge also rated the participant's performance using the SPRS-Stooge. The participant was given the Daily Thoughts questionnaire and asked to return 7 days later.

At the second session, participants were told that they would be doing another 'getting acquainted' task, and were given identical instructions to those used in the first session. Participants were then asked to rate state anxiety and to predict how well they would perform. Participants were also asked to complete equivalent versions of the SPRS and Thoughts questionnaire (modified to ask participants how they felt they had performed during their conversation task one week ago, and how much they had thought about that conversation task over the course of the week respectively), the BDI-II, the RDQ and the Metacognitions Questionnaire. Following

completion of these questionnaires, participants were told that they would not have to take part in a second conversation, and were debriefed (see Appendix E).

2.7. Data Analysis

Tests of normal distribution were conducted on all data using Kolmogorov-Smirnov one sample tests. Data that were not normally distributed were transformed for the analyses using a log transformation (with the exception of the Daily Thoughts Questionnaire where transformation either significantly reduced sample size or failed to normalise the data). Comparisons between the two groups were measured using mixed design ANOVA's, and post-hoc analyses were investigated using t-Tests. If Levene's Test for Equality of Variances was significant, *t*-Tests for unequal variances were reported. Two-tailed tests were used because although there were directional hypotheses for the high socially anxious participants, there were no clear directional hypotheses for the low socially anxious participants. An alpha level of $p < .05$ was used for all analyses, except for the Metacognitions Questionnaire where a Bonferroni correction was used to reduce Type I errors.

3. Results

3.1. Group Characteristics

Table 1 shows the mean scores for the standardised questionnaires. There were no significant differences between groups on BDI-II and RDQ scores, $t(48) = 0.49$, $p = .63$, and $t(48) = 1.29$, $p = .21$, respectively. The BDI-II and RDQ had been included

in case the two groups differed in depressive symptoms or in ruminative style. As there were no differences, no further analysis was undertaken with these two scales.

Table 1. Means and Standard Deviations of Standardised Questionnaire Measures

	High Social Anxiety		**Low Social Anxiety**		
Variable	*M*	*SD*	*M*	*SD*	*t*
FNES	23.92	3.00	4.92	1.91	26.71**
BDI-II	5.52	3.24	5.08	3.13	0.49
RDQ	45.48	11.51	40.72	14.52	1.29

**$p < .01$

3.2. Anxiety

Means and standard deviations for anxiety ratings immediately before the conversation, after the conversation and before the anticipated 2nd conversation are shown in Table 2. A 2 (Group) x 3 (Time) mixed design ANOVA was used to compare anxiety immediately before the first conversation task, immediately after the first conversation task, and immediately before the second conversation task. There was a main effect of group, F (1, 48) = 24.00, $p < .01$, and a main effect of time, F (2, 47) = 9.41, $p < .01$. High socially anxious participants were more anxious overall than low socially anxious participants (High M = 48.64, Low M = 26.60). However, all participants were more anxious before the first conversation compared to after the first conversation (Anxiety1 M = 43.22, Anxiety2 M = 34.60), $t(49)$ = 3.94, $p < .01$, and before the first conversation compared to before the anticipated second conversation (Anxiety1 M = 43.22, Anxiety3 M = 35.04), $t(49) = 3.01$, $p < .01$.

Table 2. Means and Standard Deviations of Anxiety Ratings over Time

	High Social Anxiety		**Low Social Anxiety**	
Variable	*M*	*SD*	*M*	*SD*
Anxiety 1	56.64	18.93	31.80	18.25
Anxiety 2	46.00	21.17	23.20	16.43
Anxiety 3	45.28	22.21	24.80	18.31

Note: Anxiety 1 = immediately before first conversation, Anxiety 2 after 1st conversation, Anxiety 3 = before anticipated 2nd conversation

3.3. Performance

3.3.1. Prediction of Performance

Means and standard deviations for anxiety ratings immediately before the conversation, after the conversation and before the anticipated 2nd conversation are shown in Table 3. A 2 (Group) x 3 (Time) mixed design ANOVA was used to compare prediction of performance before the first conversation task, after the first conversation task, and before the second conversation task. There was a main effect of group, F (1, 48) = 20.87, p<.01, and a main effect of time, F (2, 47) = 12.21, p< .01. The high socially anxious group predicted a worse performance overall than the low socially anxious group (High M = 43.01, SD = 14.98, Low M = 61.55, SD = 13.67). However, all participants predicted a more negative performance before the first conversation compared to their performance ratings after the first conversation (Prediction1 M = 46.56, SD = 18.08, Prediction2 M = 57.42, SD = 19.49), t (49) = 5.01, p< .01, and a more negative performance before the first conversation compared to before the anticipated second conversation (Prediction1 M = 46.56, SD

= 18.08, Prediction3 M = 52.86, SD = 19.75), t (49) = 2.97, p< .01. All participants predicted a more positive performance following the first conversation compared to before the anticipated second conversation (Prediction2 M = 57.42, Prediction3 M = 52.86), t (49) = 2.13, p< .04.

Table 3. Means and Standard Deviations of Prediction of Performance Ratings over Time

	High Social Anxiety		**Low Social Anxiety**	
Variable	*M*	*SD*	*M*	*SD*
Prediction 1	36.68	14.32	56.44	16.10
Prediction 2	48.24	18.94	66.60	15.54
Prediction 3	44.12	18.40	61.60	17.28

Note: Prediction 1 = immediately before first conversation, Prediction 2 after 1st conversation, Prediction 3 = before anticipated 2nd conversation

3.3.2. Performance

Means and standard deviations for self and partner ratings of performance using the Social Performance Rating Scale (SPRS) are shown in Table 4. Higher ratings indicate better performance. There are two questions of interest. One is whether there are differences between how participants rated themselves and how their conversation partners rated them. The second is whether participants rated themselves differently over time.

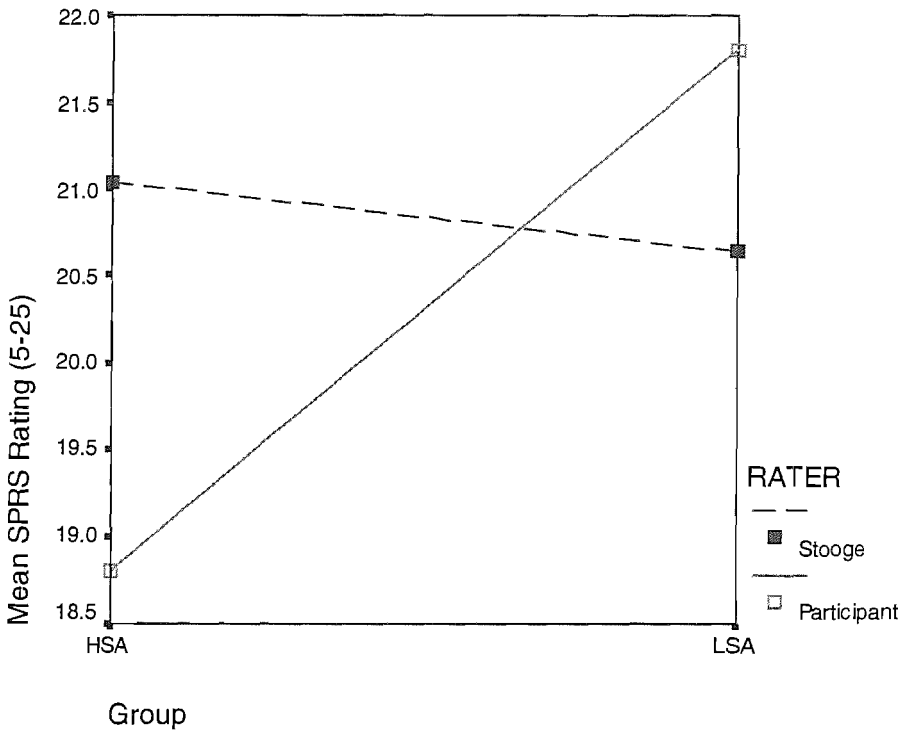
Table 4. Means and Standard Deviations of Raw Scores for Social Performance Rating Scale (SPRS) for both Participant's Self-ratings and Stooge Ratings

	High Social Anxiety		**Low Social Anxiety**	
Variable	*M*	*SD*	*M*	*SD*
SPRS Self-Rating[1]	18.80	3.38	21.80	2.20
SPRS Self-Rating[2]	17.56	3.54	21.68	2.41
SPRS Stooge Rating	21.04	3.89	20.64	3.87

Note: 1 = immediately after first conversation, 2 = before anticipated second conversation

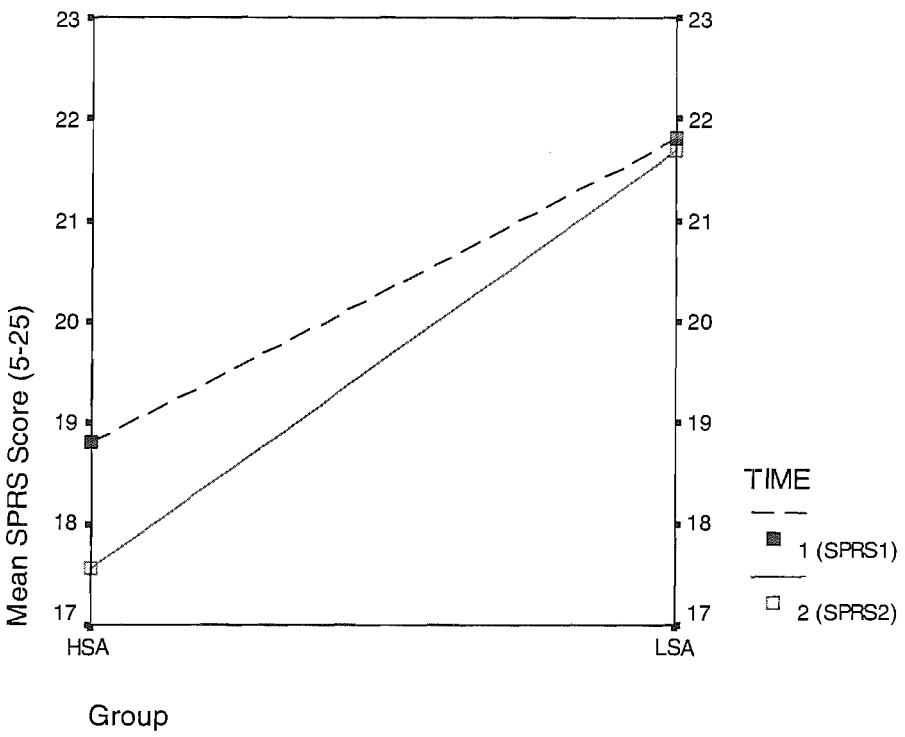
In order to answer the first question, a 2 (Group) x 2 (Rater) mixed design ANOVA was conducted on SPRS ratings following the conversation task. There was a significant interaction between rater and group, F (1, 48) = 11.41, $p< .01$, which is illustrated in Figure 1. High socially anxious participants rated their performance worse than low socially anxious participants, $t(41) = 3.72$, $p<.01$. High socially anxious participants also rated their performance significantly worse than the stooge, $t(24) = 3.48$, $p< .01$. There were no differences in performance ratings between low socially anxious participants and the stooge, $t(24) = 1.50, p> .01$.

Fig. 1. Interaction between rater and group on SPRS ratings of performance



In order to investigate self-ratings of performance over time, a 2 (Group) by 2 (Time) mixed design ANOVA was conducted on SPRS self-ratings of performance. There was a main effect of group, $F(1, 48) = 19.78, p < .01$, and a main effect of time, $F(1, 48) = 9.16$, $p < .01$. These effects were mediated by a significant group x time interaction, $F(1, 48) = 6.21$, $p < .02$, which is illustrated in Figure 2. High socially anxious participants rated their performance significantly more positively after the first conversation compared to before the second conversation. In contrast, there was no significant difference in the ratings made by low socially anxious participants after the first and before the anticipated second conversation tasks, $t(24) = 0.486$, $p > .05$.

Fig. 2. Interaction between time and group on SPRS ratings of performance



Note:

Time 1 = Immediately after first conversation
Time 2 = Before second conversation

3.4. Post-Event Processing

3.4.1. Frequency of Post-Event Processing

Means and standard deviations for the total amount of post-event rumination as measured by the Thoughts Questionnaires and Daily Thoughts Questionnaires are shown in Table 5. Higher ratings indicate more frequent post-event processing. The question of interest is whether there are differences in the total amount of post-event processing engaged in by high and low socially anxious participants, and whether this changes over time.

Table 5. Means and Standard Deviations of Raw Scores for the Thoughts Questionnaires and Daily Thoughts Questionnaires (Totals)

	High Social Anxiety			**Low Social Anxiety**		
Variable	*M*	*SD*	*n*	*M*	*SD*	*n*
TQ1 – Total	49.16	12.43	25	38.20	18.09	25
TQ2 - Total	31.24	19.11	25	17.28	12.78	25
DTQ1 – Total	13.21	8.90	19	9.32	6.18	22
DTQ2 – Total	7.95	8.06	19	3.31	5.14	22
DTQ3 – Total	5.89	6.63	19	2.68	4.60	22
DTQ4- Total	5.11	6.68	19	2.27	3.48	22
DTQ5 – Total	6.74	7.45	19	2.72	4.23	22
DTQ6 – Total	7.36	6.81	14	4.00	4.21	16
DTQ7 – Total	13.00	8.29	6	4.63	4.17	8

3.4.1.1. Thoughts Questionnaire

A 2 (Group) x 2 (Time) mixed design ANOVA was conducted on total scores obtained on the Thoughts Questionnaires. There was a main effect of group, F (1, 48) = 11.75, $p < .01$, and a main effect of time, F (1, 48) = 53.97, $p < .01$. High socially anxious participants engaged in more post-event processing overall than low socially anxious participants (High M = 40.20, SD = 13.45, Low M = 27.74, SD = 12.23). However, all participants engaged in more post-event processing immediately after the first conversation task compared to over the following week (TQ1 M = 43.68, SD = 16.33, TQ2 M = 24.26, SD = 17.57).

3.4.1.2. Daily Thoughts Questionnaire

A 2 (Group) x 5 (Time) mixed design ANOVA was conducted on total scores obtained on the Thoughts Questionnaires. Only days 1-5 of the Daily Thoughts Questionnaire were analysed as there were so much missing data on days 6 and 7. There was a main effect of group, F (1, 39) = 49.15, p< .01, and a main effect of time, F (4, 36) = 12.86, p< .01. High socially anxious participants engaged in more post-event processing overall than low socially anxious participants (High M = 7.78, SD = 6.67, Low M = 4.06, SD = 3.99). However, all participants engaged in more post-event processing the day after the conversation task compared to days two (Day1 M = 11.12, SD = 7.72, Day2 M = 5.46, SD = 6.97), t(40) = 6.05, p<.01; three (Day3 M = 4.17, SD = 5.79), t(40) = 6.84, p<.01; four (Day4 M = 3.59, SD = 5.34) t(40) = 7.25, p<.01; and five (Day5 M = 4.59, SD = 6.20), t(40) = 6.18, p<.01, respectively. Similarly, all participants engaged in more post-event processing on day two compared to days three, t(40) = 3.02, p<.01, and four, t(40) = 2.83, p<.01. No significant differences were found in the amount of post-event processing engaged in between days three, four and five (ts(40) < 0.77, ps > .05).

3.4.2. Valence of Post-Event Processing

Negative and positive rumination scores were calculated on the basis of the valence of items in the Thoughts Questionnaires and Daily Thoughts Questionnaires (see Table 6 for means and standard deviations). Higher ratings indicate more post-event processing. The question of interest is whether post-event processing in high socially anxious participants is more negative and less positive than in low socially anxious participants, and whether this changes over time.

Table 6. Means and Standard Deviations of Raw Scores for the Thoughts Questionnaires and Daily Thoughts Questionnaires (Valence)

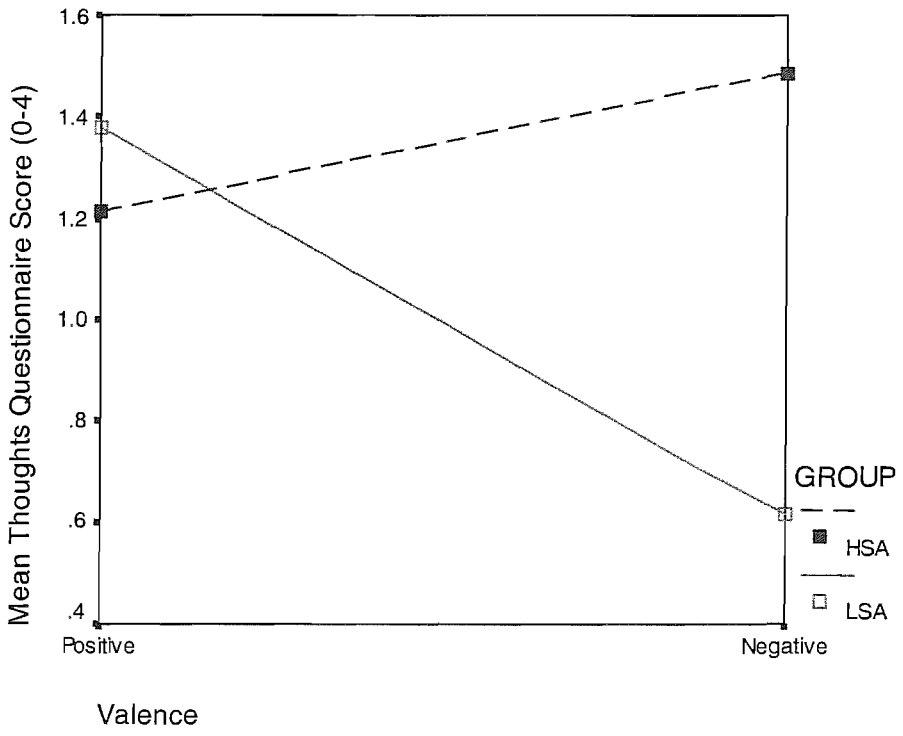
	High Social Anxiety		**Low Social Anxiety**	
Variable	*M*	*SD*	*M*	*SD*
TQ1 – Positive	1.58	0.54	1.89	0.91
TQ1 – Negative	1.75	0.65	0.86	0.70
TQ2 – Positive	0.85	0.69	0.87	0.64
TQ2 – Negative	1.22	0.81	0.37	0.48
DTQ1 – Positive	1.47	1.21	1.14	0.83
DTQ1 – Negative	1.27	0.90	0.71	0.63
DTQ2 – Positive	0.89	1.04	0.33	0.63
DTQ2 – Negative	0.74	0.81	0.27	0.52
DTQ3 – Positive	0.60	0.78	0.24	0.60
DTQ3 – Negative	0.59	0.65	0.21	0.56
DTQ4 – Positive	0.54	0.75	0.26	0.44
DTQ4 – Negative	0.54	0.72	0.14	0.43
DTQ5 – Positive	0.61	0.62	0.30	0.50
DTQ5 – Negative	0.76	0.93	0.18	0.37
DTQ6 – Positive	0.67	0.70	0.50	0.64
DTQ6 – Negative	0.79	0.73	0.28	0.39
DTQ7 – Positive	1.06	0.68	0.50	0.56
DTQ7 – Negative	1.57	1.04	0.35	0.32

3.4.2.1. Thoughts Questionnaire

A 2 (Group) x 2 (Time) x 2 (Valence) mixed design ANOVA indicated a main effect of group, F (1, 48) = 8.36, p< .01. Overall, high socially anxious individuals engaged in more post-event processing compared to low socially anxious individuals (High M = 1.35, SD = 0.45, Low M = 1.00, SD = 0.42). There was also a main effect of time, F (1, 48) = 53.17, p< .01, and of valence, F (1, 48) = 5.39, p< .02, which were mediated by significant valence x group, F (1, 48) = 24.27, p< .01, and time x valence interactions, F (1, 48) = 11.41, p< .01.

The valence x group interaction is illustrated in Figure 3.

Fig. 3. Interaction between valence and group on the Thoughts Questionnaire



High socially anxious participants reported more negative post-event processing than low socially anxious participants (High M = 1.49, SD = 0.66, Low M = 0.62, SD =

0.53), $t(48) = 5.18$, $p < .01$, but the groups did not differ in the frequency of positive post-event processing (High $M = 1.21$, $SD = 0.52$, Low $M = 1.38$, $SD = 0.57$), $t(48) = 1.06$, $p = .29$. Low socially anxious participants engaged in more positive than negative post-event processing overall (Pos $M = 1.38$, $SD = 0.57$, Neg $M = 0.62$, $SD = 0.53$), $t(24) = 5.31$, $p < .01$. In contrast, high socially anxious participants demonstrated a trend towards engaging in more negative than positive post-event processing (Pos $M = 1.21$, $SD = 0.52$, Neg $M = 1.49$, $SD = 0.66$), $t(24) = 1.78$, $p = .09$.

Investigation of the time x valence interaction showed that all participants engaged in more positive and negative rumination immediately after the first conversation task compared to during the following week (TQ1Pos $M = 1.73$, $SD = 0.76$, TQ2Pos $M = 0.86$, $SD = 0.66$; TQ1Neg $M = 1.31$, $SD = 0.80$, TQ2Neg $M = 0.79$, $SD = 0.79$), $t(49) = 6.83$, $p < .01$; $t(49) = 5.96$, $p < .01$. However, participants reported more positive than negative rumination immediately after the first conversation task, $t(49) = 2.70$, $p < .01$, but these differences disappeared a week later, $t(49) = 0.54$, $p = .59$.

3.4.2.2. Daily Thoughts Questionnaire

A 2 (Group) x 5 (Time) x 2 (Valence) mixed design ANOVA indicated a main effect of group, $F(1, 39) = 41.67$, $p < .01$: high socially anxious individuals engaged in more positive and negative post-event processing overall compared to low socially anxious individuals (High $M = 0.80$, $SD = 0.72$; Low $M = 0.38$, $SD = 0.44$). There was also a main effect of time, $F(4, 36) = 12.86$, $p < .01$. All participants engaged in more positive and negative rumination on day one compared to day two (Day1 $M = 1.13$, $SD = 0.83$, Day2 $M = 0.54$, $SD = 0.76$), $t(40) = 6.29$, $p < .01$, three (Day3 $M =$

0.40, *SD* = 0.63), *t*(40) = 7.10, p< .01, four (Day4 *M* = 0.36, *SD* = 0.60), *t*(40) = 7.31, p< .01, and five (Day5 *M* = 0.45, *SD* = 0.63), *t*(40) = 6.20, p< .01, respectively. Participants also engaged in more rumination on day two compared to days three, *t*(40) = 3.00, p< .01, and four, *t*(40) = 2.70, p< .01.

3.5. Relationships between Social Anxiety, Appraisal of Performance, and Post-Event Processing

Table 7 presents the correlations between social anxiety group, SPRS scores after the conversation task and one week later, and the Thoughts Questionnaires scores (including positive and negative post-event processing scores for immediately after the conversation task and one week later).

Table 7. Correlations between Social Anxiety, Social Performance Ratings and Post-Event Processing Questionnaire Scores

	FNES	SPR1	SPR2	TQ1tot	TQ1pos	TQ1neg	TQ2tot	TQ2pos	TQ2neg
FNES	-								
SPR1	-.50**	-							
SPR2	-.57**	.89**	-						
TQ1tot	.385**	-.26	-.40**	-					
TQ1pos	-.222	.36*	.24	.55**	-				
TQ1neg	.62	-.57**	-.65	-..82**	.02	-			
TQ2tot	.45**	-.30*	-.39**	.40**	-.03	.50**	-		
TQ2pos	-.01	.19	.15	.06	.19	-.06	.71**	-	
TQ2neg	.61**	-.52**	-.61**	.50**	-.16	.71**	.91**	.36*	-

*p< .05. **p< .01

The results in Table 7 show significant correlations between social anxiety and performance questionnaire scores, and between social anxiety and frequency of post-event processing both immediately after the conversation task and one week later. More severe social anxiety was associated with poorer appraisals of performance and the tendency to engage in more frequent rumination. A significant correlation also was observed between social anxiety and tendency to engage in negative post-event processing over time, with high social anxiety associated with a greater tendency to engage in negative post-event processing.

There were also significant negative correlations between SPR1 scores and frequency of negative post-event processing, both immediately after the conversation task and one week later. This finding indicates that more negative self-appraisals of speech task performance immediately after the conversation were associated with more negative post-event processing. Similarly, there were significant negative correlations between SPR2 scores and both the total amount and frequency of negatively valenced post-event processing and in the week following the conversation task. Results therefore indicated that more negative self-appraisals of performance were associated with 1) more post-event processing, and 2) more negatively valenced post-event processing, one week after the conversation task.

3.6. Relationships between Post Event Processing and Change Scores for State Anxiety and Prediction of Performance

Table 8 presents the correlations between the Thoughts Questionnaires scores (including positive and negative post-event processing scores) for immediately after the conversation task and one week later, and the change scores for prediction of

performance and state anxiety. Change scores represent the difference between SPRS / state anxiety ratings over time (i.e. immediately after the conversation compared to before the anticipated second conversation task).

Table 8. Correlations between Post-Event Processing and Change scores for State Anxiety and Prediction of Performance

	TQ1Tot	TQ1Pos	TQ1Neg	TQ2Tot	TQ2Pos	TQ2Neg
SPR Change	- .38**	- .17	- .33*	- .28	- .05	- .32*
Anx Change	.05	.19	- .80	- .20	-.16	- .15

*p< .05. **p< .01

Note:
SPR Change = SPRS2-SPRS1
Anx Change = Anxiety3 – Anxiety2

The results in Table 8 show a significant negative correlation between the SPR Change scores and the total amount of post-event processing engaged in immediately after the conversation task. This finding indicates that higher frequencies of post-event processing immediately after the conversation task were associated with prediction of one's actual performance worsening over time. Similarly, significant negative correlations were also observed between SPR Change scores and the frequency of negative post-event processing both immediately after the conversation and one week later. This finding suggests that high frequencies of negatively valenced post-event processing both immediately after and in the week following the conversation task were associated with prediction of one's performance becoming

more negative over time. No significant correlations were found, however, between the frequency of post-event processing and anxiety change scores.

3.7. Metacognition

Means and standard deviations for the four subscales of the Metacognitions Questionnaire are shown in Table 8. Data for the imagery subscale were transformed, yet failed to normalise the data for the high socially anxious group. Table 9 shows the untransformed mean for ease of interpretation. The alpha level was adjusted for the four comparisons using a Bonferroni corrected p value of .01 (.05/4). High socially anxious participants scored higher than low socially anxious participants on cognitive self-consciousness, $t(48) = 6.53$, $p < .01$, and controllability of thoughts, $t(48) = 6.33$, $p < .01$. Scores on the imagery subscale showed a non-significant trend in the same direction, $t(43) = 2.46$, $p = .017$. However, the two groups did not differ on the problem solving subscale, $t(48) = 1.62$, $p = .11$.

Table 9. Means and Standard Deviations of Raw Scores for the Metacognitions Questionnaire

	High Social Anxiety		**Low Social Anxiety**	
Variable	*M*	*SD*	*M*	*SD*
Problem Solving	16.84	3.50	15.32	3.12
Cognitive Self-Consciousness	14.80	2.27	9.80	3.08
Controllability	22.76	5.17	14.12	4.46
Imagery	3.28	1.14	2.48	1.45

4. Discussion

The aim of this study was to empirically examine post-event processing in participants who were high and low in social anxiety. The specific hypotheses derived from Clark and Wells' (1995) model of social phobia were that participants high in social anxiety would report more anxiety, appraise their performance more negatively, and engage in more negative post-event processing than low socially anxious participants. The results of this study elicited three findings of particular interest. The first was that high socially anxious individuals experience more anxiety, predict worse performance, and underestimate their actual performance compared to low socially anxious individuals. Second, high socially anxious participants engaged in more post-event processing about the conversation task than low socially anxious participants. High socially anxious participants reported more negative post-event processing than low socially anxious individuals, but there were no differences between the groups in positive post-event processing. Third, there were differences between the two groups in some metacognitive processes, namely cognitive self consciousness and controllability of thoughts. These findings will now be discussed in relation to previous research and current theory.

The current study replicated previous research showing that high socially anxious individuals demonstrate a negative cognitive bias in their perception of their social performance, in that they predict worse performance, underestimate actual performance, and overestimate the appearance of negative behaviours relative to individuals with low social anxiety and their conversation partner (e.g. Abbott & Rapee, 2004; Mellings & Alden, 2000; Rapee & Lim, 1992; Rushbrook, 2003; Stopa & Clark, 1993). Furthermore, similar to the findings of Rapee and Lim (1992) and in

contrast to Alden and Wallace (1995) and Stopa and Clark (1993), there was no evidence of differences in social performance between high and low socially anxious individuals. Models of social phobia conceptualise the tendency to underestimate performance as a reflection of information processing biases in which individuals with high social anxiety selectively attend to negative information about social events, thus contributing to negative perceptions or 'mental representations' of performance (Clark & Wells, 1995; Rapee & Heimberg, 1997). The present data suggested that the negative mental representation of performance was increased, in that high socially anxious participants rated their performance significantly more negatively over time. This contrasted with low socially anxious participants, who demonstrated stability in their performance ratings over time.

The study predicted a difference between high and low socially anxious individuals in the frequency and valence of post-event processing following the social interaction. The results indicated that high socially anxious individuals engaged in more frequent post-event processing than low socially anxious individuals. Furthermore, in line with predictions, high socially individuals engaged in significantly more negative post-event processing compared to low socially anxious participants. These results are consistent both with previous empirical findings (e.g. Abbott & Rapee., 2002; Abbot & Rapee, 2004; Edwards et al., 2003; Mellings & Alden, 2000; Rachman et al., 2000) and with theoretical models of social anxiety and social phobia (Clark & Wells, 1995; Rapee & Heimberg, 1997). The results support the suggestion that compared to low socially anxious individuals, people with high social anxiety are likely to conduct a review of events following a social situation, and given that there were no differences in the stooge's ratings of the two groups,

this 'post-mortem' (Clark & Wells, 1995) appears to be negatively biased. The study was also consistent with Abbott and Rapee's (2004) findings in that although high socially anxious participants reported more negative post-event processing, the groups did not differ in the amount of positive post-event processing.

These findings raise the question of why high socially anxious individuals engage in more negative post-event processing than low socially anxious individuals. Recent research into information processing biases in social phobia may provide an explanation for the high prevalence of negatively-biased post-event processing in high socially anxious individuals. Hirsch and Mathews (2000) argue that non-socially anxious individuals are able to generate inferences about performance that are biased in a positive direction. They propose that this positive bias in non-anxious individuals serves as a protective mechanism, which may maintain self-esteem and prevent clinical levels of social anxiety from developing, and they suggest that this mechanism is impaired in individuals with social anxiety and social phobia. The finding that high and low socially anxious participants do not differ in frequency of positive post-event processing suggests, however, that high socially anxious individuals are able to generate positive inferences about their performance. If this is the case, then why do high socially anxious individuals consistently negatively evaluate, and subsequently underestimate, their performance? It is possible that for individuals with high social anxiety, negative interpretation biases outweigh or invalidate positive inferences about performance. This is consistent with Hackmann, Clark, and McManus's (2000) observation that early unpleasant experiences may lead to the development of excessively negative images which fail to update even in light of favourable experiences. Positive post-event processing may therefore have

had little impact on perception of performance in the current study because, as Hackmann et al. (2000) suggest, positive information is insufficient to update distorted perceptions of the public self. In consequence, biases in information processing may mean that post-event processing is predominantly characterised by negatively valenced and biased information that subsequently influences the individual's judgement regarding his or her performance.

Although there is evidence to suggest that memory biases may be present in post-event processing (e.g. Field & Morgan, in press; Edwards et al., 2003), there is a paucity of research into the specific information processing biases that may be operating in post-event processing. Research to date has demonstrated that attentional bias (e.g. Alden & Wallace, 1995; Mansell, Clark, Ehlers, & Chen, 1999; Mansell, Clark, & Ehlers, 2003), memory bias (e.g. Mansell & Clark, 1999; Mellings & Alden, 2000), judgemental bias (e.g. Alden & Wallace, 1995), and interpretation bias for threat relevant information (e.g. Amir, Foa, & Coles, 1998; Stopa & Clark, 2000) are all likely to generate and maintain social anxiety and social phobia. Further research is therefore required to identify the relationships between these biases in information processing and post-event processing.

One aim of the current study was to examine the effects of time on post-event processing. Analysis of the Thoughts Questionnaires and Daily Thoughts Questionnaires demonstrated that although, as predicted, high socially anxious participants engaged in more negative and positive post-event processing than low socially anxious participants both immediately after the conversation task and during the following week, both groups engaged in more post-event processing immediately

after the conversation task compared to during the following week. These results are interesting in that they provide an indication of the duration of post-event processing in both groups; a factor not specified in the Clark and Wells (1995) model or investigated by Abbott and Rapee (2004).

The Daily Thoughts Questionnaire had a number of limitations. As the data were not normally distributed, and the number of participants who completed the questionnaire for all days was small, firm conclusions cannot be drawn and the results must be treated as exploratory. However, a number of interesting trends were observed. First, all participants engaged in more post-event processing in the first two days after the conversation task. It may subsequently be of interest in future studies to examine the effect of post-event processing on appraisals of performance over a shorter time period (i.e. 2-3 days as opposed to 1 week). Second, all participants consistently rated their thoughts regarding the conversation task until the fifth day. Following day five, there was a significant decline in ratings. This may provide an indication of the natural duration of post-event processing: after the fifth day, participants may have 'stopped' post-event processing. Furthermore, in comparison to low socially anxious participants, a small number of participants with high social anxiety appeared to show an increase in both negative and positive post-event processing on days five, six, and seven. Although the significance of this effect could not be established due to low numbers, this observation nevertheless provides support for Clark and Wells' (1995) suggestion that post-event processing is perpetuated by anticipatory anxiety (participants were due to return for part two of the study), and clearly warrants further investigation. Future studies using larger samples are therefore required in order to examine whether the observed effects are

replicated, and if so, to elucidate the differences between individuals in order to provide explanations of why some people continue to post-event process and others do not.

The effect of time on post-event processing in this study may have been affected by the fact that all participants were asked to complete daily questionnaires that asked how much they had thought about the conversation. This questionnaire could have cued people to think about the conversation and may have inflated their scores. To reduce this effect, the Daily Thoughts Questionnaire could be excluded from future studies. However, the disadvantage of excluding it is that data on both the degree and duration of post-event processing, and potential relationships between anticipatory and post-event processing would be lost.

In line with hypotheses, the results of the correlational analyses showed that 1) the degree of negative post-event processing about the conversation task was linked to both the extent of social anxiety and the negative appraisals of performance, both immediately after the conversation task and over time, and 2) the frequency of post-event processing (particularly negative post-event processing) was associated with appraisals of performance worsening over time. These results replicate and extend Abbott and Rapee's (2004) findings, and provide further support for Clark and Wells' (1995) model, which proposes direct relationships between the frequency of negative post-event processing and perceptions of performance both during and after the task. These results also provide support for Rapee and Heimberg's (1997) model, which posits a link between the negative mental representation of the self and rumination. It is of note, however, that the observed relationships are based upon

Abbott and Rapee's (2004) assumption that perceptions of performance obtained immediately after the task are an indication of the thoughts and feelings processed during the event itself, the content of which can therefore be directly compared to the content of the post-event processing. In order to test the accuracy of this assumption, measurement of cognitive processing during the social task itself is required. The frequency of positive and negative on-line cognitions could be measured by asking participants to press buttons corresponding to positive and negative thoughts during the interaction task.

The finding that there were no significant relationships between frequency of post-event processing and changes in state anxiety over time is surprising. Clark and Wells (1995) suggest that post-event processing may serve to maintain and reinforce anxiety regarding social situations in that it may inform the content of negatively biased information processing prior to forthcoming social situations (i.e. during anticipatory processing). It may thus be expected that the greater the frequency of negatively valenced post-event processing following a social situation, the greater the increase in the amount of state anxiety elicited prior to a pending social situation. This anomaly in the results may be explained by methodological weaknesses in the paradigm used. Although the 'getting acquainted' conversation was deemed to be a strength of the study in that it has good ecological validity (a getting acquainted task is likely to have been a common and necessary task for all participants), it is however possible that the conversation task did not elicit the required levels of anxiety to reflect usual levels of post-event processing. This is perhaps evidenced by the finding that all participants rated lower levels of state anxiety both after the first conversation and before the anticipated second conversation, compared to immediately before the

first conversation. According to Rapee and Heimberg (1997), individuals with social anxiety make predictions regarding the standard of performance expected of them based upon the presumed standards of a given audience in a given situation. The perceived importance of the audience subsequently influences the standard required and elicits associated levels of anxiety. Studies that have compared the potential of various situations to elicit fear have found that public speaking is the most commonly feared situation (e.g. Holt, Heimberg, Hope, & Liebowitz, 1992; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), closely followed by situations such as parties, meetings and speaking to authority figures (Rapee, Sanderson & Barlow, 1988). High socially anxious individuals also report experiencing greater anxiety in opposite sex interactions (Turner, Beidel, Dancu, & Keys, 1986). Further research is required to establish the effect of different types of social situation on the degree and duration of post-event processing.

A unique contribution of the current study was the examination of differences in the metacognitive processes of individuals high and low in social anxiety. The results indicated that high socially anxious participants tend to exhibit higher levels of dysfunctional meta-cognitions following a social situation, and that they score significantly higher than low socially anxious participants on measures of cognitive self consciousness (i.e. the tendency to be aware of and monitor thinking) and controllability of thoughts (i.e. the belief that one's thoughts are uncontrollable). These results are consistent with the hypothesis that metacognitions are more generally associated with psychological disturbance (Morrison & Wells, 2003). According to Wells and Mathews' (1994) Self-Regulatory Executive Function model (Wells & Mathews, 1994), these metacognitive processes may increase vulnerability

to psychological dysfunction because they generate and maintain biases in information-processing. These biases are characterised by heightened self-focused attention, threat monitoring, ruminative processing, activation of dysfunctional beliefs, and self-regulation strategies that fail to modify maladaptive beliefs.

High socially anxious individuals also demonstrated a trend towards experiencing more imagery during post-event processing (it is of note that this finding would have been significant if the more stringent Bonferroni corrected p-value had not been used). This finding is consistent with the current research base into mental imagery in social phobia (see Stravynski et al., (in press) for a review). Limitations in measurement, however, meant that the present study was unable to delineate whether images reflect the actual social interaction (and if so, whether these images are from a field or observer perspective), or whether the images that participants were referring to also include memories of previous social encounters.

The finding that high and low socially anxious participants did not differ in metacognitive beliefs regarding problem-solving (i.e. positive beliefs about the usefulness of thinking about social performance after a social event) is puzzling. Clark and Wells (1995) propose that post-event processing in socially anxious individuals is maladaptive because it elevates anxiety. In the light of this suggestion, we might expect individuals with high social anxiety to score lower than low socially anxious individuals on the problem-solving scale. However, research has also suggested that post-event processing may serve an adaptive function and be used as a strategy for confronting perceived failures in social situations (e.g. Field & Morgan, in press; Mellings & Alden, 2000; Rachman et al., 2000; Rushbrook, 2003). If this is

the case, high socially anxious participants would probably score higher on the problem-solving subscale. However, as the metacognitions questionnaire used in this study has not been validated as a reliable tool for measuring metacognitive processes in social phobia and social anxiety, the results may be attributable to limitations in measurement. Investigation of the psychometric properties of this research tool is therefore recommended so that differences in metacognitive processes between high and low socially anxious individuals can be accurately established.

It is important to note that there were a number of methodological limitations to this study that could have affected the results. A non-clinical analogue sample selected on the basis of fear of negative evaluation was used. Stopa and Clark (2001) hypothesise that the analogue approach to studying social phobia has two important strengths: it permits the use of more complex experimental designs that require large numbers of subjects and it also enables new tasks to be piloted efficiently before being tested on a clinical population. Furthermore, as social anxiety has a high prevalence in the general population (Erwin, Heimberg, Juster, & Mandlin, 2002; Chapman, Manuzza, & Fyer, 1995), Stopa and Clark (2001) postulate that comparing individuals in the non-clinical population who score relatively high and relatively low on social anxiety should provide an effective way of identifying the psychological processes that underlie extreme social anxiety and social phobia. However, it is possible that individuals with social phobia may differ from analogue populations either qualitatively and/or quantitatively in the way they process social situations. For example, Mellings and Alden (2000) suggest that individuals with social phobia may be expected to experience higher levels of anxiety and this may result in more extensive post-event processing. At higher levels of anxiety, these processes may be

more distorted than was observed in the present study. Replication of the present study using a clinical population is therefore required before the findings can be generalised to social phobia. Furthermore, future research may benefit from comparing individuals with social phobia with an analogue sample in order to clarify the similarities and differences in cognitive processing following a social event.

5. Conclusion

According to Clark and Wells' (1995) model of social phobia, post-event processing involves a review of events following a social interaction, whereby the individual focuses on anxious feelings and negative cognitions that focus on the social self. The findings from this experiment are consistent with this proposal. In line with previous research, this study showed that high socially anxious participants experience higher subjective anxiety, predict worse performance, and underestimate actual performance in a social situation compared to low socially anxious individuals. High socially anxious individuals also engage in more negative post-event processing than low socially anxious participants, with the best predictors of post-event processing being social anxiety symptom severity and self-appraisals of performance. This study also provides preliminary evidence to show that high socially anxious participants exhibit higher levels of some dysfunctional metacognitive processes than low socially anxious participants.

A final question that may be posed by the findings of the current study is how post-event processing is specifically linked to the other processes proposed by Clark and Wells (1995) in the maintenance of social phobia. Future research is therefore

required to elucidate the relationships between these processes, which in turn will enable the development of empirically based therapeutic interventions that effectively treat social phobia.

References

Abbott, M.J., & Rapee, R.M. (2002). *Rumination in response to social threat, physical threat, and depression-related events*. Manuscript submitted for publication.

Abbott, M.J., & Rapee, R.M. (2004). Post-event rumination and negative self-appraisal in social phobia before and after treatment. *Journal of Abnormal Psychology*, *113*, 136-144.

Alden, L.E., & Wallace, S.T. (1995). Social phobia and social appraisal in successful and unsuccessful interactions. *Behaviour Research and Therapy*, *33*, 497-505.

Amir, N., Foa, E.B., & Coles, M.E. (1998). Negative interpretation bias in social phobia. *Behaviour Research and Therapy*, *36*, 945-957.

Beck, A.T., Steer, R.A., & Garbin, M.G. (1996). *Beck depression Inventory Manual* (2nd Edition). San Antonio: Psychological Corporation.

Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions: The meta-cognitions questionnaire and its correlates. *Journal of Anxiety Disorders*, *11*, 279-296.

Chapman, T.F., Manuzza, S., & Fyer, A.J. (1995). Epidemiology and family studies of social phobia. In R.G. Heimberg, M.R. Liebowitz, D.A. Hope, & F.R. Schneier

(Eds.) *Social phobia: Diagnosis, assessment and treatment* (pp 21-40). New York: Guildford Press.

Clark, D.M., & Wells, A. (1995). A cognitive model of social phobia. In R. Heimberg, M. Liebowitz, D.A. Hope, & F.R. Schneier (Eds.) *Social phobia: Diagnosis, assessment and treatment* (pp 69-93). New York: Guildford Press.

Crowne, D.P., & Marlowe, D. (1964). *The approval motive: Studies in Evaluative Dependence*. New York: Wiley.

Edwards, S.L., Rapee, R.M., & Franklin, J. (2003). Post-event rumination and recall bias for a social performance event in high and low socially anxious individuals. *Cognitive Therapy and Research, 27*, 607-617.

Erwin, B.A., Heimberg, R.G., Juster, H., & Mandlin, M. (2002) Comorbid anxiety and mood disorders among persons with social anxiety disorder. *Behaviour Research and Therapy, 40*, 19-35.

Field, A.P., & Morgan, J. (in press). Post-event processing and the retrieval of autobiographical memories in socially anxious individuals. *Behaviour Research and Therapy*.

Fydrich, T., Chambless, D.L., Perry, K.J., Buergener, F., & Beazley, M.B. (1998). Behavioural assessment of social performance: a rating system for social phobia. *Behaviour Research and Therapy, 36*, 995-1010.

Hackmann, A., Clark, D.M., & McManus, F. (2000). Recurrent images and early memories in social phobia. *Behaviour Research and Therapy*, *38*, 601-610.

Harvey, A.G., Clark, D.M., Ehlers, A., & Rapee, R.M.. (2000). Social anxiety and self impression: cognitive preparation enhances the beneficial effects of video feedback following a stressful social task. *Behaviour Research and Therapy*, *38*, 1183-1192.

Hirsch, C.R., & Mathews, A. (2000). Impaired inferential bias in social phobia. *Journal of Abnormal Psychology*, *109*, 705-712.

Holt, C.S., Heimberg, R.G., Hope, D.A., & Liebowitz, M.R. (1992b). Situational domains of social phobia. *Journal of Anxiety Disorders*, *6*, 63-77.

Mansell, W., & Clark, D.M. (1999). How do I appear to others? Social anxiety and the processing of the observable self. *Behaviour Research and Therapy*, *37*, 419-434.

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

Mansell, W., Clark, D.M., Ehlers, A., & Chen, Y.P. (1999). Social anxiety and threat away from emotional faces. *Cognition and Emotion*, *13*, 673-690.

Mellings, T.M.B., & Alden, L.E. (2000). Cognitive processes in social anxiety: The effects of self-focus, rumination and anticipatory processing. *Behaviour Research and Therapy*, *38*, 243-257.

Morrison, A.P., & Wells, A. (2003). A comparison of metacognitions in patients with hallucinations, delusions, panic disorder, and non-patient controls. *Behaviour Research and Therapy*, *41*, 251-256.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, *109*, 504-511.

Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The Loma Prieta earthquake. *Journal of Personality and Social Psychology*, *58*, 519-527.

Rachman, S., Gruter-Andrew, J., & Shafran, R. (2000). Post-event processing in social anxiety. *Behaviour Research and Therapy*, *38*, 611-617.

Rapee, R.M., & Heimberg, R.G. (1997). A cognitive-behavioural model of anxiety in social phobia. *Behaviour Research and Therapy*, *35*, 741-756.

Rapee, R.M., & Lim, (1992). Discrepancy between self- and observer ratings of performance in social phobics. *Journal of Abnormal Psychology*, *101*, 728-731.

Rapee, R.M., Sanderson, W.C., & Barlow, D.H. (1988). Social phobia features across the DSM-III-R anxiety disorders. *Journal of Psychopathology and Behavioral Assessment, 10*, 287-299.

Rushbrook, S.C. (2003). *Post-event processing: Effects on social anxiety and performance.* Manuscript submitted for Doctoral Thesis, University of Southampton.

Schneier, F.R., Johnson, J., Hornig, C.D., Liebowitz, M.R., & Weissman, M.M. (1992). Social phobia: Comorbidity and morbidity in an epidemiological sample. *Archives of General Psychiatry, 49*, 282-288.

Stopa, L., & Clark, D.M. (1993). Cognitive processes in social phobia. *Behaviour Research and Therapy, 31*, 255-267.

Stopa, L., & Clark, D.M. (2000). Social phobia and interpretation of social events. *Behaviour Research and Therapy, 38*, 273-283.

Stopa, L., & Clark, D.M. (2001). Social phobia: comments on the viability and validity of an analogue research strategy and British norms for The Fear of Negative Evaluation Questionnaire. *Behavioural and Cognitive Psychotherapy, 29*, 423-430.

Stravynski, A., Bond, S., & Amado, D. (in press). Cognitive causes of social phobia: A critical appraisal. *Clinical Psychology Review.*

Stravynski, A., & Shahir, A. (1983). The treatment of social dysfunction in non-psychotic outpatients: A review. *Journal of Nervous and Mental Disease, 171*, 721-728.

Turner, S.M., Beidel, D.C., Dancu, C.Z., & Keys, D.J. (1986). Psychopathology of social phobia and comparison to avoidant personality disorder. *Journal of Abnormal Psychology, 95*, 389-394.

Veljaca, K.A., & Rapee, R.M. (1998). Detection of negative and positive audience behaviours by socially anxious subjects. *Behaviour Research and Therapy*, 36, *311-321.*

Watkins, E. (in press). Appraisals and strategies associated with rumination and worry. *Personality and Individual Differences.*

Watkins, E., & Baracaia, S. (2001). Why do people ruminate in dysphoric moods? *Personality and Individual Differences, 30*, 723-734.

Watson D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33*, 448-457.

Wells, A. (1997). *Cognitive therapy of anxiety disorders: A practice manual and conceptual guide.* Chichester, UK: Wiley.

Wells, A. (2000). *Emotional disorders and metacognition: Innovative cognitive therapy*. Chichester, UK: Wiley.

Wells, A., & Cartwright-Hatton, S. (2004). A short form of the metacognitions questionnaire: properties of the MCQ-30. *Behaviour Research and Therapy*, *42*, 385-396.

Wells, A., & Mathews, G. (1996). Modelling cognition in emotional disorder: the S-REF model. *Behaviour Research & Therapy*, *34*, 881-888.

Appendices

Appendix A

Clinical Psychology Review – Instructions to Authors

Guide for Authors

SUBMISSION REQUIREMENTS: All manuscripts should be submitted to Alan S. Bellack, Department of Psychiatry, The University of Maryland at Baltimore, 737 W. Lombard St., Suite 551, Baltimore, MD 21201, USA. Submit three (3) high-quality copies of the entire manuscript; the original is not required. Allow ample margins and type double-space throughout. Papers should not exceed 50 pages (including references). One of the paper's authors should enclose a letter to the Editor, requesting review and possible publication; the letter must also state that the manuscript has not been previously published and has not been submitted elsewhere. One author's address (as well as any upcoming address change), telephone and FAX numbers, and E-mail address (if available) should be included; this individual will receive all correspondence from the Editor and Publisher.

Papers accepted for *Clinical Psychology Review* may not be published elsewhere in any language without written permission from the author(s) and publishers. Upon acceptance for publication, the author(s) must complete a transfer of Copyright Agreement form.

COMPUTER DISKS: Authors are encouraged to submit a 3.5" HD/DD computer disk to the editorial office; 5.25" HD/DD disks are acceptable if 3.5" disks are unavailable. Please observe the following criteria: (1) Send only hard copy when first submitting your paper. (2) When your paper has been refereed, revised if necessary, and accepted, send a disk containing the final version with the final hard copy. Make sure that the disk and the hardcopy match exactly (otherwise the diskette version will prevail). (3) Specify what software was used, including which release, e.g., WordPerfect 6.0a. (4) Specify what computer was used (IBM compatible PC, Apple Macintosh, etc.). (5) The article file should include all textual material (text, references, tables, figure captions, etc.) and separate illustration files, if available. (6) The file should follow the general instructions on style/arrangement and, in particular, the reference style of this journal as given in the Instructions to Contributors. (7) The file should be single-spaced and should use the wrap-around end-of-line feature, i.e., returns at the end of paragraphs only. Place two returns after every element such as title, headings, paragraphs, figure and table call-outs. (8) Keep a backup disk for reference and safety.

TITLE PAGE: The title page should list (1) the article; (2) the authors' names and affiliations at the time the work was conducted; (3) a concise running title; and (4) an unnumbered footnote giving an address for reprint requests and acknowledgements.

ABSTRACT: An abstract should be submitted that does not exceed 200 words in length. This should be typed on a separate page following the title page.

KEYWORDS: Authors should include up to six keywords with their article. Keywords should be selected from the APA list of index descriptors, unless otherwise agreed with the Editor.

STYLE AND REFERENCES: Manuscripts should be carefully prepared using the *Publication Manual of the American Psychological Association*, 5th ed., 1994, for style. The reference section must be double spaced, and all works cited must be listed. Avoid abbreviations of journal titles and incomplete information.

Reference Style for Journals: Raymond, M.J. (1964). The treatment of addiction by aversion conditioning with apomorphine. *Behaviour Research and Therapy, 3,* 287-290.

For Books: Barlow, D.H., Hayes S.C., & Nelson, R.O. (1984). *The scientist practitioner: Research and accountability in clinical and educational settings.* Elmsford, NY: Pergamon.

TABLES AND FIGURES: Do not send glossy prints, photographs or original artwork until acceptance. Copies of all tables and figures should be included with each copy of the manuscript. Upon acceptance of a manuscript for publication, original, camera-ready photographs and artwork must be submitted, unmounted and on glossy paper. Photocopies, blue ink or pencil are not acceptable. Use black india ink and type figure legends on a separate sheet. Write the article title and figure number lightly in pencil on the back of each.

PAGE PROOFS AND OFFPRINTS: Page proofs of the article will be sent to the corresponding author. These should be carefully proofread. Except for typographical errors, corrections should be minimal, and rewriting the text is not permitted. Corrected page proofs must be returned within 48 hours of receipt. Along with the page proofs, the corresponding author will receive a form for ordering offprints and full copies of the issue in which the article appears. Twenty-five (25) free offprints are provided; orders for additional offprints must be received before printing in order to qualify for lower publication rates. All coauthor offprint requirements should be included on the offprint order form.

COPYRIGHT: Publications are copyrighted for the protection of the authors and the publisher. A Transfer of Copyright Agreement will be sent to the author whose manuscript is accepted. The form must be completed and returned to the publisher before the article can be published.

Appendix B

Behaviour Research and Therapy – Instructions to Authors

Guide for Authors

Behaviour Research and Therapy For full instructions, please visit http://authors.elsevier.com/journal/brat

Submission to the journal prior to acceptance Four copies of the manuscript, including one set of high-quality original illustrations, suitable for direct reproduction, should be submitted to **Professor G. T. Wilson, Psychological Clinic at Gordon Road, Rutgers, The State University of New Jersey, 41C Gordon Road, Piscataway, New Jersey, 08854-8067, USA**. Email: brat@rci.rutgers.edu. (Copies of the illustrations are acceptable for the other sets of manuscripts, as long as the quality permits refereeing.) Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, without the written consent of the Publisher.

Electronic format requirements for accepted articles An electronic version of the text should be submitted together with the final hardcopy of the manuscript. We accept most wordprocessing formats, but Word, WordPerfect or LaTeX is preferred. The electronic version must match the hardcopy exactly. Always keep a backup copy of the electronic file for reference and safety. Label storage media with your name, journal title, and software used. Save your files using the default extension of the program used. No changes to the accepted version are permissible without the explicit approval of the Editor. Electronic files can be stored on 3? inch diskette, ZIP-disk or CD (either MS-DOS or Macintosh).

Presentation of manuscript Please write your text in good English (American or British usage is accepted, but not a mixture of these). Italics are not to be used for expressions of Latin origin, for example, in vivo, et al., per se. Use decimal points (not commas); use a space for thousands (10 000 and above). Print the entire manuscript on one side of the paper only, using double spacing and wide (3 cm) margins. (Avoid full justification, i.e., do not use a constant right-hand margin.) Ensure that each new paragraph is clearly indicated. Present tables and figure legends on separate pages at the end of the manuscript. If possible, consult a recent issue of the journal to become familiar with layout and conventions. Number all pages consecutively.

Provide the following data on the title page (in the order given).

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

Author names and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name, and, if available, the e-mail address of each author.

Corresponding author. Clearly indicate who is willing to handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract. A concise and factual abstract is required (maximum length 200 words). The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.

Keywords. Immediately after the abstract, provide a maximum of 6 keywords, to be chosen from the APA list of index descriptors. These keywords will be used for indexing purposes.

Abbreviations. Define abbreviations that are not standard in this field at their first occurrence in the article: in the abstract but also in the main text after it. Ensure consistency of abbreviations throughout the article.

N.B. Acknowledgements. Collate acknowledgements in a separate section at the end of the article and do **not**, therefore, include them on the title page, as a footnote to the title or otherwise.

Shorter Communications This option is designed to allow publication of research reports that are not suitable for publication as regular articles. Shorter Communications are appropriate for articles with a specialized focus or of particular didactic value. Manuscripts should be between 3000 - 5000 words, and must not exceed the upper word limit. This limit includes the abstract, text, and references, but not the title pages, tables and figures.

Arrangement of the article Subdivision of the article. Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ?), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to 'the text.' Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Appendices. If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: (Eq. A.1), (Eq. A.2), etc.; in a subsequent appendix, (Eq. B.1) and so forth.

Acknowledgements. Place acknowledgements, including information on grants received, before the references, in a separate section, and not as a footnote on the title page.

Figure legends, tables, figures, schemes. Present these, in this order, at the end of the article. They are described in more detail below. High-resolution graphics files must always be provided separate from the main text file (see Preparation of illustrations).

Specific remarks Tables. Number tables consecutively in accordance with their appearance in the text. Place footnotes to tables below the table body and indicate them with superscript lowercase letters. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

Preparation of supplementary data. Elsevier now accepts electronic supplementary material to support and enhance your scientific research. Supplementary files offer the author additional possibilities to publish supporting applications, movies, animation sequences, high-resolution images, background datasets, sound clips and more. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier web products, including ScienceDirect: http://www.sciencedirect.com. In order to ensure that your submitted material is directly usable, please ensure that data is provided in one of our recommended file formats. Authors should submit the material in electronic format together with the article and supply a concise and descriptive caption for each file. For more detailed instructions please visit our Author Gateway at http://authors.elsevier.com. Files can be stored on 3? inch diskette, ZIP-disk or CD (either MS-DOS or Macintosh).

References Responsibility for the accuracy of bibliographic citations lies entirely with the authors

Citations in the text: Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications should not be in the reference list, but may be mentioned in the text. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Citing and listing of web references. As a minimum, the full URL should be given. Any further information, if known (author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Text: Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the Publication Manual of the American Psychological Association, Fifth Edition, ISBN 1-55798-790-4, copies of which may be ordered from http://www.apa.org/books/4200061.html or APA Order Dept., P.O.B. 2710, Hyattsville, MD 20784, USA or APA, 3 Henrietta Street, London, WC3E 8LU, UK. Details concerning this referencing style can also be found at http://humanities.byu.edu/linguistics/Henrichsen/APA/APA01.html.

List: References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication.

Examples: Reference to a journal publication: Van der Geer, J., Hanraads, J. A. J., & Lupton R. A. (2000). The art of writing a scientific article. Journal of Scientific Communications, 163, 51-59.

Reference to a book: Strunk, W., Jr., & White, E. B. (1979). The elements of style. (3rd ed.). New York: Macmillan, (Chapter 4).

Reference to a chapter in an edited book: Mettam, G. R., & Adams, L. B. (1994). How to prepare an electronic version of your article. In B. S. Jones, & R. Z. Smith (Eds.), Introduction to the electronic age (pp. 281-304). New York: E-Publishing Inc.

Note that journal names are not to be abbreviated.

Preparation of illustrations

Submitting your artwork in an electronic format helps us to produce your work to the best possible standards, ensuring accuracy, clarity and a high level of detail.

General points ? Always supply high-quality printouts of your artwork, in case conversion of the electronic artwork is problematic. ? Make sure you use uniform lettering and sizing of your original artwork. ? Save text in illustrations as "graphics" or enclose the font. ? Only use the following fonts in your illustrations: Arial, Courier, Helvetica, Times, Symbol. ? Number the illustrations according to their sequence in the text. ? Use a logical naming convention for your artwork files, and supply a separate listing of the files and the software used. ? Provide all illustrations as separate files and as hardcopy printouts on separate sheets. ? Provide captions to illustrations separately. ? Produce images near to the desired size of the printed version.

A detailed guide on electronic artwork is available on our website: http://authors.elsevier.com/artwork You are urged to visit this site; some excerpts from the detailed information are given here.

Formats Regardless of the application used, when your electronic artwork is finalised, please "save as" or convert the images to one of the following formats (Note the resolution requirements for line drawings, halftones, and line/halftone combinations given below.):

EPS: Vector drawings. Embed the font or save the text as "graphics".
TIFF: Colour or greyscale photographs (halftones): always use a minimum of 300 dpi.
TIFF: Bitmapped line drawings: use a minimum of 1000 dpi.
TIFF: Combinations bitmapped line/half-tone (colour or greyscale): a minimum of 500 dpi is required.
DOC, XLS or PPT: If your electronic artwork is created in any of these Microsoft Office applications please supply "as is".

Line drawings Supply high-quality printouts on white paper produced with black ink. The lettering and symbols, as well as other details, should have proportionate dimensions, so as not to become illegible or unclear after possible reduction; in general, the figures should be designed for a reduction factor of two to three. The degree of reduction will be determined by the Publisher. Illustrations will not be enlarged. Consider the page format of the journal when designing the illustrations. Photocopies are not suitable for reproduction. Do not use any type of shading on computer-generated illustrations.

Photographs (halftones) Please supply original photographs for reproduction, printed on glossy paper, very sharp and with good contrast. Remove non-essential areas of a photograph. Do not mount photographs unless they form part of a composite figure. Where necessary, insert a scale bar in the illustration (not below it), as opposed to giving a magnification factor in the legend. Note that photocopies of photographs are not acceptable.

Copyright Upon acceptance of an article, authors will be asked to transfer copyright (for more information on copyright see http://authors.elsevier.com). This transfer will ensure the widest possible dissemination of information. A letter will be sent to the corresponding author confirming receipt of the manuscript. A form facilitating transfer of copyright will be provided. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases: contact ES Global Rights Department, P.O. Box 800, Oxford, OX5 1DX, UK; phone: (+44) 1865 843830, fax: (+44) 1865 853333, e-mail: permissions@elsevier.com

Proofs When your manuscript is received by the Publisher it is considered to be in its final form. Proofs are not to be regarded as 'drafts'. One set of page proofs will be sent to the corresponding author, to be checked for typesetting/editing. No changes in, or additions to, the accepted (and subsequently edited) manuscript will be allowed at this stage. Proofreading is solely your responsibility. The Publisher reserves the right to proceed with publication if corrections are not communicated. Return corrections within 3 days of receipt of the proofs. Should there be no corrections, please confirm this.

Offprints Twenty-five offprints will be supplied free of charge. Additional offprints and copies of the issue can be ordered at a specially reduced rate using the order form sent to the corresponding author after the manuscript has been accepted. Orders for reprints (produced after publication of an article) will incur a 50% surcharge.

Appendix C

Measures

(i) Social Performance Rating Scale – Participant's Version (Time 1)

(ii) Social Performance Rating Scale – Participant's Version (Time 2)

(iii) Social Performance Rating Scale – Stooge's Version

(iv) Thoughts Questionnaire (Time 1)

(v) Thoughts Questionnaire (Time 2)

(vi) Daily Thoughts Questionnaire

(vii) Meta-Cognitions Questionnaire

SOCIAL PERFORMANCE RATING SCALE (SPRS1)

THINK ABOUT THE CONVERSATION THAT YOU HAVE JUST HAD.

READ THE FOLLOWING STATEMENTS AND CIRCLE THE STATEMENT IN EACH SECTION THAT YOU THINK BEST APPLIES TO YOU.

GAZE

1. I completely avoided looking / stared continually, at the other person.
2. I avoided eye contact (or stared) for the majority of the time. This was disruptive to the conversation.
3. I frequently avoided eye contact (or stared). This was mildly disruptive to the conversation.
4. I occasionally avoided eye contact / tended to look too much while the other person was speaking or during shifts of conversation.
5. I kept eye contact but did not stare during the conversation. The focus of my gaze shifted during pauses and conversation.

VOCAL QUALITY

1. I spoke in either a) a flat, monotonous voice; or b) a low volume or mumbled; or c) over loudly.
2. During the conversation, a) I demonstrated no warmth, interest or enthusiasm in my verbal expression; b) my voice was low or unclear; or c) I spoke a little bit too loudly.
3. I a) showed some warmth in my verbal expression but at most times sounded unenthusiastic or uninterested; and b) spoke with appropriate volume and had clear voice quality; and c) did not have an intrusive or sarcastic tone.
4. I a) showed moderate warmth but inconsistent enthusiasm or interest. The conversation seemed fake or forced; b) spoke with appropriate volume and had clear voice quality; and c) did not have an intrusive or sarcastic tone.
5. I was warm and enthusiastic in verbal expression without sounding condescending or gushy.

LENGTH

1. My speech turns were monosyllabic (e.g. 'hmmm', 'yeah', 'OK'); or my responses so long that the other person had to interrupt or could not utter a reply.

2. I made mostly short statements with very long pauses; or spoke in long phrases that monopolised the conversation.

3. I mainly spoke 1 sentence at a time with occasional long pauses between sentences; or I tended to talk excessively most of the time but allowed some responses from the other person.

4. I mostly spoke in statements of 1 or 2 sentences without any major pauses, but there were other occasions where speech was short or excessive.

5. At most times, my utterances were 2 or more sentences long. I acknowledged the other person's remarks without taking over or monopolising the conversation.

DISCOMFORT

1. I had complete rigidity of arms, legs or whole body / constant leg movements or fidgeting with hands, hair or clothing. I had frequent nervous throat clearing, swallowing, or stuttering. There was some 'nervous' giggling or laughing. I felt extremely uncomfortable and wanted to flee the situation.

2. I was rigid / fidgety for the majority of the time. I had difficulty sitting still and this was somewhat disruptive to the conversation. There was some nervous throat clearing or swallowing. I sometimes had a nervous giggle or laugh. I showed signs of discomfort by frequently looking around.

3. My posture was not rigid. There was: slight movement of legs, fidgeting, throat clearing, or swallowing. I felt uncomfortable for only brief periods.

4. There was no rigidity, nervous throat clearing, or swallowing. I fidgeted minimally, and this was not disruptive to the conversation. I displayed no notable signs of discomfort. At times I appeared relaxed and felt at ease (smiling or gesturing).

5. I had relaxed body posture and natural body movement. I laughed and smiled at appropriate times. I showed effective gesturing. I did not appear at all uncomfortable, and was at ease in the situation.

CONVERSATION FLOW

1. I made few attempts to initiate the conversation. Even when prompted by the other person, I could not maintain the conversation. I used almost no open-ended questions, or asked intrusive questions. I did not attend to the information provided by the other person.

2. I tried to initiate the conversation, but was only successful about half the time. The conversation did not flow smoothly. I did not follow up on topics and did not provide free information about myself (it must have seemed more like an interview to the other person). I sometimes forgot factual information provided by the other person (e.g. had to repeat questions).

3. For the most part, I was able to maintain the conversation with little help form the other person, although the conversation was still somewhat awkward at times. I asked some open-ended questions. I provided little free information and may have forgotten some of the other person's comments.

4. I was able to maintain the conversation with little help from the other person. The conversation flowed smoothly, I disclosed something about myself, and asked the other person a related question. I showed interest in the other person, and followed up appropriately on the other person's remarks.

5. I easily maintained the conversation and responded smoothly to pauses in the conversation, often by following up on previous information provided by the other person, or providing free information about myself on a related topic. I introduced new topics fluidly, and frequently used open-ended questions. I showed genuine interest in the other person and followed up on the other person's remarks with warmth and enthusiasm.

SOCIAL PERFORMANCE RATING SCALE (SPRS2)

THINK ABOUT THE CONVERSATION THAT YOU HAD LAST WEEK.

READ THE FOLLOWING STATEMENTS AND CIRCLE THE STATEMENT IN

EACH SECTION THAT YOU THINK BEST APPLIED TO YOU.

GAZE

1. I completely avoided looking / stared continually, at the other person.

2. I avoided eye contact (or stared) for the majority of the time. This was disruptive to the conversation.

3. I frequently avoided eye contact (or stared). This was mildly disruptive to the conversation.

4. I occasionally avoided eye contact / tended to look too much while the other person was speaking or during shifts of conversation.

5. I kept eye contact but did not stare during the conversation. The focus of my gaze shifted during pauses and conversation.

VOCAL QUALITY

1. I spoke in either a) a flat, monotonous voice; or b) a low volume or mumbled; or c) over loudly.

2. During the conversation, a) I demonstrated no warmth, interest or enthusiasm in my verbal expression; b) my voice was low or unclear; or c) I spoke a little bit too loudly.

3. I a) showed some warmth in my verbal expression but at most times sounded unenthusiastic or uninterested; and b) spoke with appropriate volume and had clear voice quality; and c) did not have an intrusive or sarcastic tone.

4. I a) showed moderate warmth but inconsistent enthusiasm or interest. The conversation seemed fake or forced; b) spoke with appropriate volume and had clear voice quality; and c) did not have an intrusive or sarcastic tone.

5. I was warm and enthusiastic in verbal expression without sounding condescending or gushy.

LENGTH

1. My speech turns were monosyllabic (e.g. 'hmmm', 'yeah', 'OK'); or my responses so long that the other person had to interrupt or could not utter a reply.

2. I made mostly short statements with very long pauses; or spoke in long phrases that monopolised the conversation.

3. I mainly spoke 1 sentence at a time with occasional long pauses between sentences; or I tended to talk excessively most of the time but allowed some responses from the other person.

4. I mostly spoke in statements of 1 or 2 sentences without any major pauses, but there were other occasions where speech was short or excessive.

5. At most times, my utterances were 2 or more sentences long. I acknowledged the other person's remarks without taking over or monopolising the conversation.

DISCOMFORT

1. I had complete rigidity of arms, legs or whole body / constant leg movements or fidgeting with hands, hair or clothing. I had frequent nervous throat clearing, swallowing, or stuttering. There was some 'nervous' giggling or laughing. I felt extremely uncomfortable and wanted to flee the situation.

2. I was rigid / fidgety for the majority of the time. I had difficulty sitting still and this was somewhat disruptive to the conversation. There was some nervous throat clearing or swallowing. I sometimes had a nervous giggle or laugh. I showed signs of discomfort by frequently looking around.

3. My posture was not rigid. There was: slight movement of legs, fidgeting, throat clearing, or swallowing. I felt uncomfortable for only brief periods.

4. There was no rigidity, nervous throat clearing, or swallowing. I fidgeted minimally, and this was not disruptive to the conversation. I displayed no notable signs of discomfort. At times I appeared relaxed and felt at ease (smiling or gesturing).

5. I had relaxed body posture and natural body movement. I laughed and smiled at appropriate times. I showed effective gesturing. I did not appear at all uncomfortable, and was at ease in the situation.

CONVERSATION FLOW

1. I made few attempts to initiate the conversation. Even when prompted by the other person, I could not maintain the conversation. I used almost no open-ended questions, or asked intrusive questions. I did not attend to the information provided by the other person.

2. I tried to initiate the conversation, but was only successful about half the time. The conversation did not flow smoothly. I did not follow up on topics and did not provide free information about myself (it must have seemed more like an interview to the other person). I sometimes forgot factual information provided by the other person (e.g. had to repeat questions).

3. For the most part, I was able to maintain the conversation with little help form the other person, although the conversation was still somewhat awkward at times. I asked some open-ended questions. I provided little free information and may have forgotten some of the other person's comments.

4. I was able to maintain the conversation with little help from the other person. The conversation flowed smoothly, I disclosed something about myself, and asked the other person a related question. I showed interest in the other person, and followed up appropriately on the other person's remarks.

5. I easily maintained the conversation and responded smoothly to pauses in the conversation, often by following up on previous information provided by the other person, or providing free information about myself on a related topic. I introduced new topics fluidly, and frequently used open-ended questions. I showed genuine interest in the other person and followed up on the other person's remarks with warmth and enthusiasm.

SOCIAL PERFORMANCE RATING SCALE – STOOGE'S VERSION

THINK ABOUT THE CONVERSATION THAT YOU HAVE JUST HAD.

READ THE FOLLOWING STATEMENTS AND CIRCLE THE STATEMENT

WHICH YOU THINK BEST APPLIES TO THE PARTICIPANT:

GAZE

1. The participant completely avoided looking / stared continually at me.

2. The participant avoided eye contact (or stared) for the majority of the time. This was disruptive to the conversation.

3. The participant frequently avoided eye contact (or stared). This was mildly disruptive to the conversation.

4. The participant occasionally avoided eye contact / tended to look too much while I was speaking or during shifts of conversation.

5. The participant kept eye contact but did not stare during the conversation. The participant shifted the focus of their gaze during pauses and conversation.

VOCAL QUALITY

1. The participant spoke in either a) a flat, monotonous voice; or b) a low volume or mumbled; or c) over loudly.

2. During the conversation, the participant a) demonstrated no warmth, interest or enthusiasm in my verbal expression; b) his/her voice was low or unclear; or c) he/she spoke a little bit too loudly.

3. The participant a) showed some warmth in my verbal expression but at most times sounded unenthusiastic or uninterested; and b) spoke with appropriate volume and had clear voice quality; and c) did not have an intrusive or sarcastic tone.

4. The participant a) showed moderate warmth but inconsistent enthusiasm or interest. The conversation seemed fake or forced; b) spoke with appropriate volume and had clear voice quality; and c) did not have an intrusive or sarcastic tone.

5. The participant was warm and enthusiastic in verbal expression without sounding condescending or gushy.

LENGTH

1. The participant's speech turns were monosyllabic (e.g. 'hmmm', 'yeah', 'OK'); or his/her responses were so long that I had to interrupt or could not utter a reply.

2. The participant made mostly short statements with very long pauses; or spoke in long phrases that monopolised the conversation.

3. The participant mainly spoke 1 sentence at a time with occasional long pauses between sentences; or tended to talk excessively most of the time but allowed some responses from myself.

4. The participant mostly spoke in statements of 1 or 2 sentences without any major pauses, but there were other occasions where speech was short or excessive.

5. At most times, the participant's utterances were 2 or more sentences long. The participant acknowledged my remarks without taking over or monopolising the conversation.

DISCOMFORT

1. The participant had complete rigidity of arms, legs or whole body / constant leg movements or fidgeting with hands, hair or clothing. The participant had frequent nervous throat clearing, swallowing, or stuttering. There was some 'nervous' giggling or laughing. Participant has look of extreme discomfort and desire to flee the situation.

2. The participant was rigid / fidgety for the majority of the time. The participant had difficulty sitting still and this was somewhat disruptive to the conversation. There was some nervous throat clearing or swallowing. The participant sometimes had a nervous giggle or laugh. The participant showed signs of discomfort by frequently looking around.

3. The participant's posture was not rigid. There was: slight movement of legs, fidgeting, throat clearing, or swallowing. The participant shows only brief periods of discomfort.

4. There was no rigidity, nervous throat clearing, or swallowing. The participant fidgeted minimally, and this was not disruptive to the conversation. The participant displayed no notable signs of discomfort. At times he/she appeared relaxed and at ease (smiling or gesturing).

5. The participant had relaxed body posture and natural body movement. The participant laughed and smiled at appropriate times. S/he showed effective gesturing. The participant did not appear at all uncomfortable, but at ease in the situation.

CONVERSATION FLOW

1. The participant made few attempts to initiate the conversation. Even when prompted by myself, the participant could not maintain the conversation. The participant used almost no open-ended questions, or asked intrusive questions. The participant did not attend to the information provided by myself.

2. The participant tried to initiate the conversation, but was only successful about half the time. The conversation did not flow smoothly, but is more like an interview than a conversation (e.g. the participant did not follow up on topics and did not provide free information about his/her self). The participant sometimes forgot factual information provided by myself (e.g. had to repeat questions).

3. For the most part, the participant was able to maintain the conversation with little help form myself, although the conversation was still somewhat awkward at times. The participant asked some open-ended questions. The participant provided little free information and may have forgotten some of my comments.

4. The participant was able to maintain the conversation with little help from myself. The conversation flowed smoothly, the participant disclosed something about his/her self, and then asked myself a related question. The participant showed interest in me, and followed up appropriately on my remarks.

5. The participant easily maintained the conversation and responded smoothly to pauses in the conversation, often by following up on previous information provided by myself, or providing free information about his/her self on a related topic. The participant introduced new topics fluidly, and frequently used open-ended questions. The participant showed genuine interest in myself and followed up on my remarks with warmth and enthusiasm.

THOUGHTS QUESTIONNAIRE (T1)

This questionnaire examines how you may think about the various aspects of the conversation which you have just had. Some people may have very few thoughts about the conversation, whereas others may have thoughts about some of the things mentioned below. Please rate each statement as to how much you have thought about each aspect **in the time since you had your conversation**:

I thought about this since I had the conversation:-

0	**1**	**2**	**3**	**4**
Never	Not Often	Sometimes	Often	Very Often

1.	My interaction was good	0	1	2	3	4
2.	I could have done much better	0	1	2	3	4
3.	How anxious I felt	0	1	2	3	4
4.	The other person was interested in what I had to say	0	1	2	3	4
5.	I should have talked about something else	0	1	2	3	4
6.	The other person liked me	0	1	2	3	4
7.	The other person was not interested in what I had to say	0	1	2	3	4
8.	If my blushing/sweating/dry mouth/shaking was obvious	0	1	2	3	4
9.	How well I handled the task	0	1	2	3	4
10.	How bad my interaction was	0	1	2	3	4
11.	I made a fool of myself	0	1	2	3	4
12.	The conversation flowed well	0	1	2	3	4
13.	How much I enjoy these situations	0	1	2	3	4
14.	How I always do badly in this type of situation	0	1	2	3	4
15.	The conversation was awkward	0	1	2	3	4
16.	I must have looked stupid	0	1	2	3	4
17.	How smoothly it all went	0	1	2	3	4
18.	How self-conscious I felt	0	1	2	3	4
19.	How incompetent I appeared	0	1	2	3	4
20.	That I spoke about interesting topics	0	1	2	3	4
21.	How many pauses I made	0	1	2	3	4
22.	How confident I felt	0	1	2	3	4
23.	I came across as self-assured	0	1	2	3	4
24.	How awkward I felt	0	1	2	3	4
25.	That I was at my best	0	1	2	3	4
26.	How nervous I was	0	1	2	3	4
27.	I didn't make a good impression	0	1	2	3	4
28.	Other aspects of the situation	0	1	2	3	4
29.	The situation overall	0	1	2	3	4

THOUGHTS QUESTIONNAIRE (T2)

This questionnaire examines how often you may have thought about the various aspects of the session in which you had a conversation with someone you didn't know. Some people may have had very few thoughts about the last time they were here, whereas others may have thought frequently about some of the things mentioned below. Please rate each statement as to how much you have thought about each aspect **in the time since you had your conversation**:

I thought about this in the past week:-

0	**1**	**2**	**3**	**4**
Never	Not Often	Sometimes	Often	Very Often

1.	My interaction was good	0	1	2	3	4
2.	I could have done much better	0	1	2	3	4
3.	How anxious I felt	0	1	2	3	4
4.	The other person was interested in what I had to say	0	1	2	3	4
5.	I should have talked about something else	0	1	2	3	4
6.	The other person liked me	0	1	2	3	4
7.	The other person was not interested in what I had to say	0	1	2	3	4
8.	If my blushing/sweating/dry mouth/shaking was obvious	0	1	2	3	4
9.	How well I handled the task	0	1	2	3	4
10.	How bad my interaction was	0	1	2	3	4
11.	I made a fool of myself	0	1	2	3	4
12.	The conversation flowed well	0	1	2	3	4
13.	How much I enjoy these situations	0	1	2	3	4
14.	How I always do badly in this type of situation	0	1	2	3	4
15.	The conversation was awkward	0	1	2	3	4
16.	I must have looked stupid	0	1	2	3	4
17.	How smoothly it all went	0	1	2	3	4
18.	How self-conscious I felt	0	1	2	3	4
19.	How incompetent I appeared	0	1	2	3	4
20.	That I spoke about interesting topics	0	1	2	3	4
21.	How many pauses I made	0	1	2	3	4
22.	How confident I felt	0	1	2	3	4
23.	I came across as self-assured	0	1	2	3	4
24.	How awkward I felt	0	1	2	3	4
25.	That I was at my best	0	1	2	3	4
26.	How nervous I was	0	1	2	3	4
27.	I didn't make a good impression	0	1	2	3	4
28.	Other aspects of the situation	0	1	2	3	4
29.	The situation overall	0	1	2	3	4

DAILY THOUGHTS QUESTIONNAIRE

This questionnaire examines how often you may have thought about the various aspects of the session in which you had a conversation with someone you didn't know. Some people may have had very few thoughts about the conversation task, whereas others may have thought frequently about some of the things mentioned below. Please rate each statement as to how much you have thought about each aspect **today**:

I thought about this:-

0	**1**	**2**	**3**	**4**
Never	Not Often	Sometimes	Often	Very Often

1.	Thoughts about the conversation task during the day	0	1	2	3	4
2.	How anxious I felt	0	1	2	3	4
3.	How well I handled the task	0	1	2	3	4
4.	How bad my interaction was	0	1	2	3	4
5.	How smoothly it all went	0	1	2	3	4
6.	How anxious I feel about the next task	0	1	2	3	4
7.	How I am looking forward to the next task	0	1	2	3	4
8.	How I always do badly in this type of situation	0	1	2	3	4
9.	How I can do better in the next task	0	1	2	3	4
10.	Other aspects of the situation	0	1	2	3	4

METACOGNITIONS QUESTIONNAIRE

Finally, I would like to ask you some questions about your appraisal of your thoughts following a social situation…

1. After you have been in a social situation, do you spend a lot of time dwelling on the event?
(Please circle appropriate response)

1	2	3	4	5
Not At All				**All the Time**

2. After you have been in a social situation, to what extent do you feel you have control over your thoughts?
(Please circle appropriate response)

1	2	3	4	5
Total Control (Am able to 'switch' my thoughts 'on' & 'off)				**No Control** (Feel compelled to dwell on the event)

The following statements reflect the thoughts that some people may have following a social situation. Please read each statement and say how much you agree with it by circling the appropriate number.

	1 Do Not Agree	**2**	**3**	**4**	**5** Totally Agree
1. I think a lot about my performance in social situation	1	2	3	4	5
2. Thinking about the situations helps me to avoid problems in future social situations	1	2	3	4	5
3. Thinking about the situation helps me to relax	1	2	3	4	5
4. I think a lot about how others perceive me in social situations	1	2	3	4	5
5. My thoughts about the situation persist no matter how much I try to stop them	1	2	3	4	5
6. Thinking about the situation helps me to cope	1	2	3	4	5

7. I cannot ignore my thoughts following a social situation	1	2	3	4	5
8. I rarely question my thoughts following a social Situation	1	2	3	4	5
9. If I did not think about the social situation, I would make more mistakes in future situations	1	2	3	4	5
10. I find it difficult to control my thoughts following a social situation	1	2	3	4	5
11. Thoughts about the social situation enter my head against my will	1	2	3	4	5
12. When I start thinking about the situation, I cannot stop	1	2	3	4	5
13. My thoughts about the social situation are not productive	1	2	3	4	5
14. Thinking about the situation can stop me from seeing the situation clearly	1	2	3	4	5
15. After a social situation, I try to stop myself thinking about it	1	2	3	4	5
16. Thoughts about the social situation appear automatically	1	2	3	4	5
17. When I think about the social situation, I experience a lot of visual images associated with the situation	1	2	3	4	5

Scoring Key: Meta-Cognitions Questionnaire

Factor	1	2	3	4
Item No.	2	1	2	17
	3	1	5	
	6	4	7	
	9	8*	10	
	13*		11	
	14*		12	
			15	
			16	

* Reverse Scored Items

Factor

1. Problem Solving
2. Cognitive Self-consciousness
3. Beliefs about Controllability
4. Imagery

Appendix D

Participant Information Sheet and Statement of Consent

A study of Thoughts associated with Initial Encounters

Information Sheet for Research Participants

I am Laura Dannahy, a 3rd Year Trainee undertaking the Doctoral Programme in Clinical Psychology. I am requesting your participation in a study regarding thoughts related to initial encounters with unknown individuals.

Please take time to read the following information:

Participation in the Study

Participation is voluntary. If you decide to take part, you are free to withdraw at any time. If you choose not to participate, there will be no consequences to your treatment as a student in the Department of Psychology.

What am I being asked to do?

The study is divided into 2 stages:

- Stage 1

As part of Stage 1, you will be asked to engage in an introductory conversation with an unknown individual for a period of 5 minutes. Following this, you will be asked to complete a number of questionnaires related to your thoughts regarding this initial encounter.

- Stage 2

You will be asked to come back in a week's time to complete the 2nd stage of the experiment. This will involve taking part in another conversation with an unknown individual.

Confidentiality

Personal information will not be released to or viewed by anyone other than the researchers involved in this project. Results of this study will not include your name or any other identifying characteristics.

If you have nay questions or queries please ask them now, or contact me via E-mail. My E-mail address is: led101@soton.ac.uk.

Thank you for your time!

Laura Dannahy
Trainee Clinical Psychologist
Doctoral Programme in Clinical Psychology
University of Southampton
Highfield
Southampton.

Statement of Consent

I _____ have read the above informed consent form.
[Participant's name]

I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentiality. A copy of this consent letter will be offered to me.

I give consent to participate in the above study.
(Circle Yes or No)

YES **NO**

Signature _____ Date _____

Name _____

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.

Appendix E

Debrief

A study of Thoughts Associated with Initial Encounters

Debrief

The aim of this research was to investigate post-event processing following an initial conversation with an unknown individual.

What is Post-Event Processing?

According to the Cognitive Model proposed by Clark and Wells (1995), individuals with elevated levels of social anxiety engage in Post-Event Processing (PEP) of social events. PEP involves a detailed review of the event. It is hypothesised that the cognitive content and associated affect of PEP is usually guided by perceived negative aspects of the event (e.g. a person may think that they embarrassed themselves). It is also hypothesised that PEP may result in the perception of one's performance worsening over time.

To date, however, there is limited empirical research into PEP. Your data will therefore help our understanding of this aspect of the cognitive model. It is expected that compared to individuals who score low on measures of social anxiety, individuals with higher levels of anxiety will 1) make more negative predictions about their performance in the conversation task, and 2) report more negative thoughts following their performance in the conversation task.

Use of Deception

At the beginning of the study, you were told that you would be required to engage in a 2nd conversation task with another unknown individual. Although no 2nd interaction took place, it was felt that this deception was required in order to examine whether there were any differences in levels of anxiety and prediction of performance following the initial conversation task between individuals with high and low social anxiety.

Confidentiality

Once again, results of this study will not include your name or any other identifying characteristics.

If you have any further questions, please do not hesitate to contact me [Laura Dannahy] via E-mail. My E-mail address is led101@soton.ac.uk.

Thank you for your participation in this research!

Signature _____ Date _____

Name _____

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.
Phone: (023) 8059 3995.