



Learning to re-appraise the self during video feedback for social anxiety: Does depth of processing matter?

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ABSTRACT

Video feedback (VF) with cognitive preparation (CP) has been widely integrated into cognitive-behavioral therapy (CBT) protocols for social anxiety disorder (SAD) due to its presumed efficacy in improving negative self-perception. However, previous experimental studies have demonstrated that improvements in negative self-perception via VF + CP do not typically facilitate anxiety reduction during subsequent social interactions – a troubling finding for proponents of cognitive models of social anxiety. We examined whether VF + CP could be optimized to enhance participants' processing of corrective self-related information through the addition of a post-VF cognitive review (CR). Sixty-eight socially anxious individuals were randomly assigned to perform two public speeches in one of the following conditions: a) exposure alone (EXP); b) CP + VF; and c) CP + VF + CR. Those in the CP + VF + CR condition demonstrated marginally significant reductions in anxiety from speech 1 to speech 2 relative to those who received EXP – an improvement not shown for those in the CP + VF condition. Furthermore, only those who received CP + VF + CR demonstrated significant improvements in self-perception and performance expectations relative to EXP. Decreases in anxiety among participants who received CP + VF + CR relative to EXP were fully mediated by improvements in self-perception. Implications are discussed in the context of cognitive models of social anxiety and mechanisms of exposure-based learning.

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Research in support of influential cognitive models of social anxiety (Clark & Wells, 1995; Rapee & Heimberg, 1997) has shown that socially anxious and phobic individuals possess excessively negative representations of self that are characterized by significant underestimations of social performance abilities (e.g. Ashbaugh, Antony, McCabe, Schmidt, & Swinson, 2005; Moscovitch & Hofmann, 2007; Norton & Hope, 2001; Rapee & Lim, 1992). Negative self-perception is considered by cognitive theorists to be the lens through which socially anxious individuals process information during social threat (e.g., Hirsch & Clark, 2004) and, therefore, the driving force behind the persistent, and often debilitating, somatic and behavioral symptoms that are characteristic of social anxiety.

Of paramount interest to those engaged in improving therapeutic interventions for social anxiety is the question of how best to facilitate the modification of self-representations so that they contain more accurate and positive self-relevant information (e.g.,

Brewin, 2006; Moscovitch, 2009). Theory and research on the behavioral principles of extinction learning suggest that changes in mental representations of self occur when individuals are presented with corrective information that is incompatible with their current self-schemas (Foa & Kozak, 1986; Foa & McNally, 1996; see Moscovitch, Antony, & Swinson, 2009 for a review). Presumably, once corrective information is encoded and processed, new and more accurate self-representations are consolidated into memory, which then compete with prior representations for activation in subsequent situations (Bouton, 2002; Brewin, 2006).

A growing body of research has begun to investigate whether an efficacious method for improving self-perception in individuals with social anxiety disorder (SAD) is to confront them directly with images of their own performance via video feedback (VF). Now widely integrated into contemporary cognitive-behavioral therapy (CBT) protocols for SAD (e.g., Clark et al., 2003; Hofmann & Scepkowski, 2006), VF involves providing individuals with video playback of their social performance following their participation in a social task, such as a public speech or a one-on-one conversation. It is hoped that the experience of viewing video recordings of their own social performances will enable socially anxious individuals to correct underestimations of their social abilities,

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which in turn, will lead to reduced symptoms of anxiety in anticipation of future social events (Harvey, Clark, Ehlers, & Rapee, 2000; Rapee & Hayman, 1996; Rodebaugh, 2004b).

When used in the context of some CBT protocols for SAD, VF is both preceded and followed by cognitive exercises designed to help patients glean new self insights. For example, therapeutic protocols based on Clark and Wells' (1995) cognitive model of SAD (Clark et al., 2003; Mortberg, Clark, Sundin, & Aberg Wistedt, 2007) include both a *pre-VF* cognitive preparation phase (based on Harvey et al.'s (2000) experimental procedure) and a *post-VF* review or discussion. During the preparation phase, patients are asked to predict in detail how they will appear in the video, such that they may be more likely to notice upon watching the video the discrepancies between how they predicted they would appear and how they actually appeared. Patients are also prepared beforehand on how to watch the video through the eyes of an "objective observer." During the post-VF review, patients spend considerable time discussing the accuracy of their own self-views with the therapist.

In the majority of experimental studies in the literature on VF in social anxiety, however, the post-VF review phase is conspicuously absent. As summarized in Table 1, experimental research on social anxiety and VF has typically examined the efficacy of VF on its own (i.e., with neither a pre-VF preparation phase nor a post-VF review phase; Rapee & Hayman, 1996; Rodebaugh & Chambless, 2002), or with the addition of a pre-VF cognitive preparation phase only (Harvey et al., 2000; Kim, Lundh, & Harvey, 2002; Rodebaugh, 2004b; Smits, Powers, Buxkamper, & Telch, 2006). These studies have found that, a) VF was efficacious in improving self-perception (e.g. Harvey et al., 2000; Rodebaugh, 2004b) and b) VF with cognitive preparation led to changes in self-perception that generalized to a second speech situation (Kim et al., 2002). However neither VF alone nor VF with cognitive preparation succeeded in facilitating significant reductions in social anxiety symptoms above and beyond exposure alone (Rapee & Hayman, 1996; Rodebaugh, 2004b; Smits et al., 2006).

One might wonder whether the null findings pertaining to social anxiety reduction in previous VF studies were related (at least in part) to the absence of a post-VF review period, during which time participants would be encouraged to elaborately process and encode the feedback information. Indeed, emotional processing theory (Foa & Kozak, 1986; Foa & McNally, 1996) as well as influential 'depth of processing' models in learning and memory research (Craik & Lockhart, 1972; Craik & Tulving, 1975), and recent studies on self-esteem and the internalization of positive feedback (e.g., Marigold, Holmes, & Ross, 2007) all emphasize the importance of elaborate encoding in facilitating new learning. Would the addition of a post-VF review period that encourages individuals to elaborately process new information about themselves facilitate both improvements in self-perception and subsequent reductions in social anxiety symptoms, as has been reported in some treatment studies that have incorporated VF methods into CBT protocols (e.g., Clark et al., 2003; Mortberg et al., 2007)?

Two very recent experimental studies extended previous investigations of VF in social anxiety by examining the efficacy of a VF intervention that included *both* pre-VF cognitive preparation and post-VF cognitive review (McManus et al., 2009; Parr & Cartwright-Hatton, 2009). McManus et al. (2009) demonstrated that one session of VF in the context of a comprehensive cognitive therapy protocol for individuals with SAD led to significant improvements in self-reported social anxiety and self-perception. However, because VF was provided in the context of a therapy session, the VF (and its pre- and post-phases) were administered differentially across participants depending on their individual needs (e.g., some participants received only one exposure to VF

while others received more than one exposure with occasional stopping of the video to examine critical points). It is, therefore, impossible to ascertain from McManus et al.'s (2009) study which of the intervention components were necessary and/or sufficient for social anxiety reduction. Furthermore, there was no experimental comparison condition intrinsic to their study with which to compare the effects of VF, making it difficult to disentangle the unique effects of the VF intervention from other therapeutic factors that might have led to significant symptom changes in the early stages of treatment.

Parr and Cartwright-Hatton (2009) similarly found that socially anxious adolescents who received VF with cognitive preparation and a post-VF review of discrepancies highlighted in the video reported significant reductions in social anxiety prior to a second speech performance, in comparison to those in a control condition who received exposure alone. Although promising, we cannot, from these results, piece apart which components of VF (or combinations thereof) are necessary for social anxiety reduction.

Aderka (2009) recently attempted to clarify the effect of VF on treatment efficacy by conducting a meta-analysis of eighteen recent clinical trials for SAD (2000–2006) assessing both VF and treatment format (individual vs. group) as potential moderators of treatment outcome. Results demonstrated that VF was not a moderator of treatment outcome; however, the author acknowledged that the non-significant moderation effect may be due, in part, to low statistical power, as only five of the eighteen trials included video feedback. Further, within the five trials including VF, there was variability in how VF was administered. That is, four of the trials included both preparation and 'cognitive review' phases (Clark et al., 2003, 2006; Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003)¹ and one trial included a cognitive preparation phase only (Smits et al., 2006). Therefore, in spite of this comprehensive review, it still remains unclear which combinations of the VF phases are necessary for symptom reduction among individuals with SAD.

Present study

Based on the research mentioned above, we wished to conduct a rigorous experimental test of the efficacy of a) VF preceded by cognitive preparation, compared with b) VF preceded by cognitive preparation and followed by a post-VF review phase, compared with c) an exposure-alone condition in which participants received no VF. To this end, we developed and tested a post-VF cognitive review phase that was designed to enhance the depth at which socially anxious individuals processed and encoded the self-related information gleaned from VF, as per emotional processing theory (Foa & Kozak, 1986; Foa & McNally, 1996), and "depth of processing" models of learning and memory (Craik & Lockhart, 1972; Craik & Tulving, 1975), which suggest that individuals more effectively learn and internalize new information when it is elaborately processed on a deeper and more meaningful level.

Sixty-eight participants pre-screened as scoring high on measures of both social anxiety and verbal communication apprehension delivered two public speeches in a laboratory setting. Through random assignment, one-third of participants performed two consecutive public speeches (i.e., exposures²) and received no intervention, one-third received VF preceded by cognitive preparation (as developed by Harvey et al., 2000), and one-third received

¹ The study by Stangier et al. (2003) included two VF trials.

² The term, "exposure" simply means that participants were "exposed" to the speech situations. It does not refer to an "exposure session" as used in cognitive-behavioral therapy.

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