Performance effects of self-focus

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ABSTRACT During the last three decades there has been a growing literature on self-focused attention, the state during which the self becomes the center of awareness. The effects of such a mental state on the performance of social, cognitive and other tasks have been examined in many studies, and results show that self-focus is associated with improved or deteriorated performance depending on other factors, such as the presence of evaluation anxiety, the participants' success expectations and the presence of psychological disorders associated with social or evaluative concerns. The mechanism behind this interaction between self-focused attention and other factors has not yet become clear, although several theoretical models have been developed to examine the findings. This review summarizes the empirical findings and theoretical models and proposes directions for further research and theory development.

Key words: Self-focused attention, Performance effects.

Self-focused attention has been a part of social psychological theorizing over the past four decades in areas as diverse as perspective taking, attitudes and attributions of causation (Fenigstein, 1984; Fenigstein & Abrams, 1993; Bernstein & Davis, 1982; Carver, 1975; Cohen, Dowling, Bishop, & Maney, 1985; Gibbons, 1983; Gibbons & Wright, 1983; Hass, 1984; Stevenson & Wicklund, 1983; Duval & Wicklund, 1973). It has also become part of cognitive theories of psychopathology (Ingram, Johnson, Bernet, & Dombeck, 1992; see Ingram, 1990, for a review), and particularly social anxiety (Hartman, 1983), test anxiety (Wine, 1971) and depression (Pyszczynski, Greenberg, Hamilton, & Nix, 1991). Self-focused attention has been examined both as a state, in which case various experimental or situational variables induce one to be self-focused, and as a trait (Fenigstein, Scheier, & Buss, 1975), in which case the stable tendency to focus on one self is measured through paper and pencil questionnaires.

The present review examines the theoretical and empirical work on the effects of self-focused attention on the performance of various tasks, drawing attention to the areas that require further examination. Obviously, the topic of self-focus is very broad. The following methodology applies only to the selection of the *empirical* articles that present effects of self-focused attention in the domains of social, cognitive and sexual performance. Articles were identified through a literature search of the Psych-Info Database using the terms «self-focus and performance», «self-focused attention and performance», «self-awareness and performance», «cognitive and self-focused attention», «social and self-focused attention», «sexual and self-focused attention»

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and «social facilitation and performance» from 1970 to present, limited to the English language. This search resulted in 508 citations (including duplications). The abstracts of all of these were examined for inclusion in the study. Dissertation abstracts were eliminated, as were books and book chapters. The later were eliminated because they represented reviews or re-statements of the major theories that are cited here and which were derived from the primary literature. From the remaining journal articles only the ones that a) used experimental manipulations of self-focused attention and b) used a specific task in the domains of interest (social, cognitive, sexual) were included. Articles were deemed irrelevant if they dealt with physically ill populations (brain injury, Alzheimer's etc.), because in these studies «self-awareness» is used with a somewhat different meaning, i.e. ability to be conscious of the self. Articles were also considered irrelevant if they dealt with performance realms other than the ones specified above. The great majority of the studies removed by this criterion were derived from the business administration literature and dealt with managerial performance: This type of performance was not included in the review, because it refers to long term job outcome, a concept which is complex and multi-dimensional, and cannot be compared to the short term performance of a specific experimental task as is examined in the studies of interest here. Articles derived from the social facilitation search were numerous (197) and deserve a review of their own. Only those meeting the criteria above were used, while all that studied specific variations of self-focus manipulations were eliminated. This process left 31 empirical studies, all of which are cited in the empirical part of this review.

What is self-focused attention?

Several theories have attempted to explain the construct of self-focused attention. The *self-awareness theory* of Duval & Wicklund (1972) proposes that during self-focused attention the individual becomes aware of the self as an object and attempts to match behavior to salient social standards. Because the self usually falls short of social standards, self-focus results in negative affect and ideation. In terms of performance, it is suggested that attention becomes absorbed by the self and deters processing of task relevant information, hurting performance outcomes. Carver's (Carver, 1979; Carver & Scheier, 1991) *cybernetic model* of self-regulation proposes that attention is fluid and can quickly shift back and forth between the self and the environment, and that the affect one experiences depends on the expectancies one has of meeting salient standards successfully. If one expects success, one will persist on a task and feel positive, whereas if the expectation is a negative one, will withdraw from the attempt to meet the standard and feel negative. Hull and Levy (1979) suggest that whether one performs well on a task under self-focus depends on task self-relevance. Since self-relevant information is activated in memory during self-focus, only tasks that rely on such information will be facilitated.

There are some common assumptions among self-focus theories: That the content of attention during self-focus consists of self-related information, such as awareness of internal physiological states, and evaluations regarding how the self is viewed by others (i.e., one takes an observer perspective, as in Wells & Papageorgiou, 1999). This assumption has received empirical support: On questionnaires such as the Linguistic Implications Form (Wegner & Guiliano, 1980, 1983) and the Self-Focus Sentence Completion (Exner, 1973) self-focused individuals report more self-relevant thoughts and complete ambiguous sentences with more first person pronouns. Also, an observer perspective is indeed common among self-focused individuals. For instance, Hass (1984) found that self-focused participants asked to write the letter «E» on their forehead write it from an outsider's point of view.

A second assumption is that attention has a

limited capacity and that, when the self becomes the focus of attention, processing of the external environment becomes deficient. However, attention is also seen as fluid by theorists such as Carver, in the sense that it can shift quickly from the self to the external world, so that, for instance, a socially anxious individual can be preoccupied with self-evaluations while at the same time being hyper-vigilant to danger signals in the environment (Rapee & Heimberg, 1997). Based on these assumptions, many empirical studies have tested the hypothesis that self-focused attention leaves limited attentional resources for social, cognitive and other tasks.

Performance deterioration during self-focus states

Typically, self-focus is experimentally induced via the presence of a TV camera (Davis & Brock, 1975), an audience or a mirror (Carver & Scheier, 1978) and, in some more direct manipulations, by asking the participant to focus either on the self or an external stimulus (Woody & Rodriguez, 2000). What is typically done in self-focus experiments is that the participant is asked to sit in front of a mirror, which is usually left unexplained. It has been found by Davis and Brock (1975), as well as by others, that seeing one's reflection in the mirror directs attention to self-relevant and self-evaluative thoughts. Alternatively, when a camera or an audience are used, the participant is asked to perform a task under observation. The observers or the camera are either presented as having an innocuous role irrelevant to the task or are described as ways to monitor and evaluate the participant. In either case (i.e., even with the mere presence of observers, actual or implicit, as in the case of a camera), monitoring is believed to also lead to self-relevant thinking and self-evaluation (i.e., to induce an «observer perspective» in the participant) (Wells & Papageorgiou, 1999). It must be noted that the later case, where one describes the presence of the audience or camera as a way to evaluate the participant, confounds self-focused attention with the induction of evaluation apprehension. The performance of self-focused individuals on various tasks is then compared to a control group of individuals who have not been exposed to any manipulations. One can check the success of self-focus manipulations through self-report or projective questionnaires and through physiological measures, but not all studies include such manipulation checks. Even when paper and pencil manipulation checks are included, their validity is questionable. For instance, Panayiotou and Vrana (1998a) found that the correlations among various self-focus measures are close to zero. Hence, both studies that use and do not use manipulations checks are included in this review, even though the success of inducing self-focus has to be assumed in some instances.

Social performance

Numerous studies have examined the effects of self-focus manipulations on the performance of social tasks. It is generally found that self-focused attention is detrimental to social performance, particularly among those with low success expectations or with social-evaluative concerns. For instance, Burgio, Merluzzi and Pryor (1986) examined the effects of high and low expectancy of success and self-focused attention on the performance of men getting to know a woman over the telephone. Low expectancy men were rated as less skillful and more nervous by judges, but only in the self-focus condition (presence of a camera). Behaviorally, low expectancy, self-focused men spent less time talking and had shorter conversations. Alden, Teschuk and Tee (1992) found that low social self-efficacy women reported more self-focus, self-evaluation and concern about the impression they made on others. They withdrew faster from the social

situation and were rated by their partners as less likable and less successful than self-focused, high self-efficacy participants.

Hope, Heimberg and Klein (1990) found that socially anxious women receiving evaluative instructions and placed in front of a video-camera recalled less information about a social interaction and made more errors in their recall. Others, however, have found that memory deficits during social interactions may not hold for verbally presented information (Kimble & Zehr, 1982). Vallacher (1978) found that subjects seated in front of a camera and told that they were evaluated on their «body language» performed worse on a social discrimination task than non-self-focused subjects. Daly, Vangelisti and Lawrence (1989) studied the effects of audience presence on public speaking among high and low speech anxious subjects. Self-focused participants, who also tended to be more speech anxious, received marginally worse performance ratings.

Cognitive performance

Performance decrements have also been demonstrated on cognitive tasks. Brockner (1979a, 1979b) studied high and low self-esteem participants who received either success or failure feedback and then performed a concept formation task under conditions of either self-focus or no self-focus. Low self-esteem participants performed worse when given negative feedback in the self-focus condition or if they were dispositionally self-focused. Brockner and Hulton (1978) had subjects high and low in self-esteem complete a concept formation task under self-focus, task-focus (instructions to focus attention on the task) and a control condition. Low self-esteem subjects performed worse than high self-esteem subjects in the self-focus condition, whereas low self-esteem subjects performed better than high self-esteem subjects in the task-focus condition. Kassin (1984) found that camera presence, in combination with evaluation instructions, impaired the recall of testimony-related information by mock jurors. Dollinger, Greening and Lloyd (1987) found that in a condition involving the presence of a mirror, a video-camera and evaluation instructions subjects performed worse on a task entailing choosing a person who might commit theft, on the basis of the targets' word associations. Samuel and Dollinger's (1989) participants showed impaired social judgments in a mirror condition. Liebling and Shaver (1973) found that mirror presence deterred performance on a text-copying task, but only under evaluation conditions. Panayiotou and Vrana (1998a) manipulated self-focus (induced via a camera) and evaluation anxiety (by presenting performance on a digit-list recall task as being evaluated or as irrelevant to the experiment) independently. They found that self-focus only had a deleterious effect on performance if subjects were also being evaluated. Baumeister, Hamilton and Tice (1985) manipulated private expectancies by providing early success or failure feedback and also giving information to subjects about the expectancies of the experimenter (audience), which were either high or low. Performance was harmed when the audience expected success, but initial private success expectation improved performance. In a second experiment, they manipulated the credibility of the audience's expectations. When subjects had reason to believe the experimenter's prediction that they should do well, their performance improved compared to control subjects. When the experimenter's prediction was based on data that were not credible, subjects performed worse than no-audience controls (see also Baumeister & Steinhilber, 1984). On an anagram task, Davidson and Henderson (2000) found that monitoring deterred performance if the task was difficult, but improved it when the task was easy. Ferrari (2001) found that procrastinators (usually evaluatively anxious individuals) performed worse under self-focus on an accuracy task compared to non-

procrastinators. Douthitt and Aiello (2001) found that on a complex computer task monitoring generally resulted in impaired performance, unless the participants were given the option to turn off observation, even if this option was not used.

The test-anxiety literature is also relevant here, since test-anxious subjects are evaluatively anxious, but perform cognitive rather than social tasks. Wine (1971) reviewed the test-anxiety literature and found that during self-focus test anxious subjects perform poorly, whereas the performance of low test-anxious subjects improves. Rich and Woolover (1988) tested the hypothesis that self-focused attention would have differential effects on the performance of high and low test-anxious individuals, depending on their performance expectancy. High and low test-anxious individuals received success or failure feedback and then completed a verbal achievement test, either in the presence or absence of a mirror. Positive expectancy, high test-anxious participants performed better when self-focused, whereas high test-anxious, negative expectancy, self-focused individuals performed worse than all other groups. Carver, Peterson, Follansbee and Scheier (1983) found that test-anxious but not non-anxious participants showed worse anagram-solving performance in the presence of a mirror.

Sexual performance

High anxiety and self-focused attention are two alternative hypotheses that have been presented to explain sexual dysfunction in men. Traditional theories (e.g., Kaplan, 1987) have explained arousal difficulties in terms of excessive anxiety due to performance fears, religious inhibitions or relationship stress. Recent studies have revealed, however, that anxiety, in the form of physiological arousal, may be unrelated to sexual functioning and in some cases may actually improve performance. Henceforth, cognitive explanations similar to the self-focus attention interpretations of other performance deficits have begun to emerge. Sexual performance situations involve self-focus to the extent that the sexual partner is viewed as an evaluative «audience». Heiman and Rowland (1983) found that sexually functional males showed greater response to erotic stimuli under high performance demand, whereas dysfunctional males showed inhibition of responding. Abrahamson, Barlow and Abrahamson (1989; also Beck & Barlow, 1984) found that a sexually relevant performance demand condition involving feedback actually improved the level of arousal of sexually functional men and inhibited it among dysfunctional men.

Performance improvement during self-focus

Many studies, especially within the social facilitation literature, show enhanced rather than inhibited performance under self-focus conditions. Zajonc's (1965) social facilitation theory suggests that the mere presence of others (i.e., an audience) leads to increased drive, which enhances the emission of dominant responses. Responses are dominant if they occur «with greater frequency, probability and intensity» (Duval & Wicklund, 1972). Cottrell et al. (1968) found that the mere presence of a blindfolded individual did not affect performance and concluded that it must be the evaluative aspects of others' presence that produce social facilitation.

The empirical literature has numerous examples of performance facilitation in the presence of self-focus manipulations. Carver and Scheier (1981) asked participants to copy German prose and found improved performance in the two self-focused conditions. Putz (1975) found that, compared to a condition where the subject performed a vigilance task alone, monitoring subjects through a TV camera, a one-way mirror or the presence of an observer resulted in fewer missed signals. Ferris and

Rowland (1983) found that the presence of an evaluative audience improved the quality of performance on a text-editing task compared to an «alone» condition. Paulus, Annis and Risner (1978) found that mirror presence enhanced performance of a prose-copying task under high evaluation conditions, but decreased it in low evaluation conditions. Liebling and Shaver (1973) obtained opposite results, with performance being improved by mirror presence under low evaluation conditions and impaired under high evaluation. Panayiotou (1998b) found better performance on a simple reaction time task in two different self-focused conditions compared to no self-focus. Carver and Scheier (1982) found that subjects who had been given success feedback performed better on a maze task under mirror conditions, whereas subjects who had received failure feedback did more poorly in the mirror condition. Similarly, Sanna and Shotland (1990) found that positive expectancy (positive feedback) subjects performed better on a memory task in an audience condition compared to subjects who received no feedback and were in a no audience condition. On the other hand, negative expectancy, audience condition subjects performed worse than the no audience, no feedback subjects. One should also be reminded of the studies presented in the section titled «Sexual performance» (Abrahamson, Barlow, & Abrahamson, 1989; Beck & Barlow, 1984; Heiman and Rowland, 1983), which indicate that, whereas sexual performance deteriorates among sexually dysfunctional men as a function of evaluation anxiety and self-focused attention, these conditions improve performance among those who do not have sexual difficulties, indicating once more the paramount role of success expectations.

Summary of performance deficit and performance improvement results

Social, cognitive and sexual performance decline are often the consequence of self-focus. Notable, however, is the significant role played in this relationship by social or evaluation anxiety and success expectancy. Regarding social performance, few studies have examined the presence of performance decline among subjects who are *not* socially anxious, to determine whether self-focus also affects performance, although one study by Woody and Rodriguez (2000) found that both socially anxious and normal individuals appeared more anxious and reported more anxiety under self-focus conditions during a social task. Within the same studies, self-focus has been shown to deter the performance of those who have reasons to expect failure, but improve performance among those who do not. When it comes to sexual performance, as seen above, for sexually functional men performance improved under conditions of self-focus and evaluation, whereas for dysfunctional men it deteriorated under the same conditions. In test-anxiety as well, it is those who are test-anxious that perform poorly on cognitive tasks under self-focus conditions, whereas the performance of those who are not test-anxious may actually improve. It appears then that it is people who are somehow «vulnerable» (i.e., low self-efficacy individuals, socially anxious or test anxious individuals, sexually dysfunctional men, procrastinators) who are more likely to be negatively affected by the presence of self-focus manipulations, as it is proposed by Hope, Gansler and Heimberg (1989). Among normal individuals self-focus may actually be associated with performance improvement. Hence, among those who are not overly concerned with evaluation and have no intrinsic reason to expect failure the presence of audience, mirrors and cameras may enhance performance, particularly on easy tasks and when success is expected.

Given that both performance improvement and deterioration have been found to be associated with self-focus, it becomes imperative that any theory explaining performance effects of

self-focus should be able to explain both findings and rely on a unified mechanism that can explain both failure and success. Success or failure expectations have been shown to play a paramount role in the preceding review and need to be allocated the appropriate significance within any theory explaining the effects of self-focus.

The proposed mechanisms of self-focused attention

Several theories have been proposed to explain the mechanism behind performance improvement and deterioration under self-focus conditions that implicate the cognitive, affective and self-regulatory systems. In all theories what is apparent is the association between self-focus and evaluation apprehension. In fact, one may claim that self-focused attention and self-evaluation are inseparable and part of the same process, and some studies have shown that self-focus manipulations have no effect when there is no evaluation implication (Szymanski, Garczynski, & Harkins, 2000). When one evaluates oneself *vis-a-vis* a social or performance standard, one inevitably becomes self-focused in an attempt to examine one's behavior. Alternatively, when one becomes self-focused, one will inescapably compare the self to relevant standards, as was proposed by Duval and Wicklund in their original theory (1972). The following review of the mechanisms explaining the effects of self-focus on performance demonstrates the centrality of self-evaluation and points to the cognitive, affective, physiological and behavioral components of self-regulation that are deemed important by the theorists in this area.

Attention modulation

One mechanism behind self-focus effects involving attentional capacity was proposed by Hartman (1983) and others (Ingram, 1990; Sarason, 1975) and was based on Duval and Wicklund's self-awareness theory. It proposes that self-focused attention impairs performance among the socially (or evaluatively) anxious, because it diverts limited attentional resources toward the self and away from the task, leading the participant to miss significant information in the environment. Hence, socially and test anxious people, among others, may be «vulnerable» because they have a worse capacity to modulate and appropriately allocate their limited attentional resources (Ingram, 1990). The theory is supported by a significant body of evidence, showing that social and other phobics have an attentional bias toward threatening information (e.g., Hope, Rapee, Heimberg, & Dombeck, 1990). Rapee and Heimberg (1997) concur in suggesting that the situation of socially anxious individuals is analogous to a «multiple-task paradigm» where the socially anxious individual has to simultaneously attend to evaluative cognitions about the self, threatening cues from the social situation and the task demands of the social interaction. Assuming that attention has a limited capacity, such a diversity of attentional foci would be expected to compromise one's performance on social tasks. The theory, however, is not supported by some of the clinical evidence regarding social anxiety: It has been found that treatment of social phobia results in decreased negative self-focused thoughts but not increased positive thoughts, and in decreased self-focused thoughts but *not* increased externally focused thoughts (Woody & Rodriguez, 2000; Hoffmann, 2000). The attention modulation theory would predict, in contrast, that the improvement in task performance would come about due to increased ability to direct attention toward the task, and hence more task relevant thoughts should appear. In fact, the Woody and Rodriguez, as well as the Hoffmann findings lead to the conclusion that it may be the negative valence rather than the content of the cognitions that impairs performance, but further investigation of the attention modulation theory is needed, perhaps using the excellent multiple-task para-

digms (emotional Stroop, dichotic listening etc.) that have been developed to examine attentional processes in anxiety.

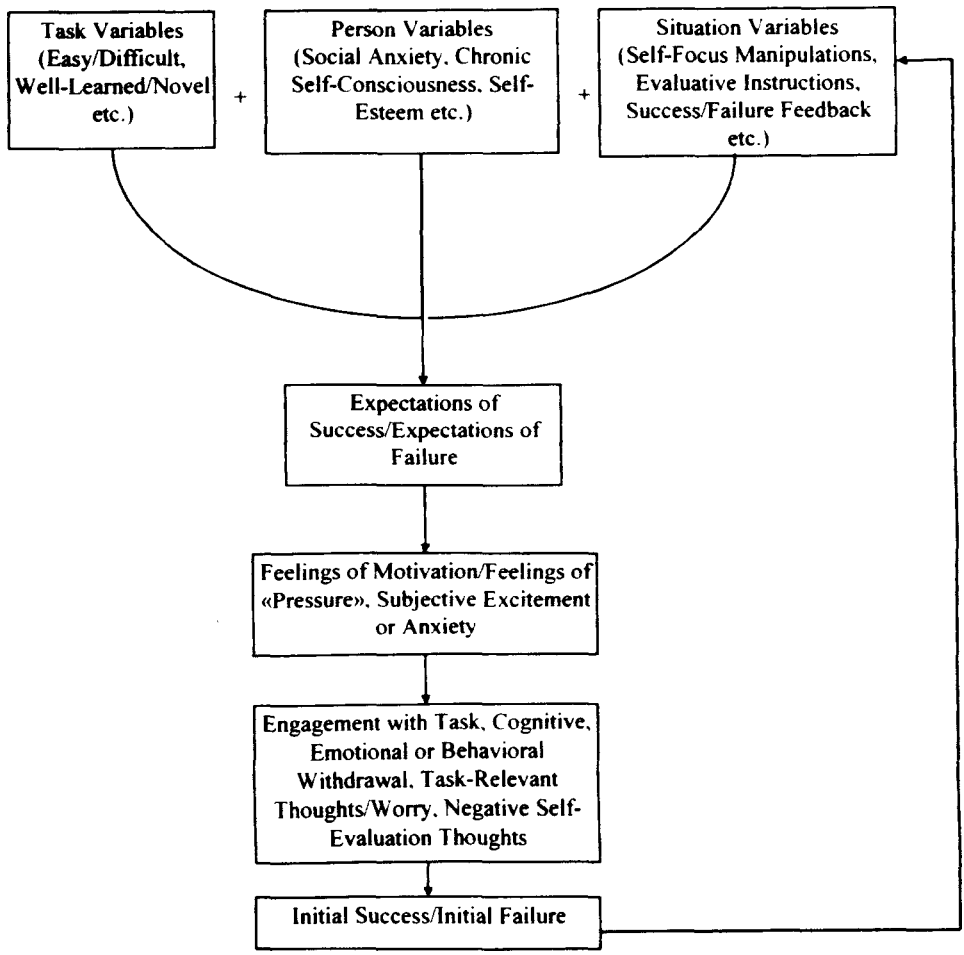
Arousal

Social facilitation theory proposes that increased «drive» or arousal is the mechanism behind performance effects of self-focus (Aiello & Douthitt, 2001). Evaluation anxiety frequently co-occurs, intentionally or not, with self-focus in the relevant experimental designs. For instance, the unexplained presence of a video camera in many studies (as in Burgio et al., 1986) is a signal of evaluation to most people, as may be the presence of a mirror to some individuals, especially those concerned about their physical appearance. In most of the above studies and others (Wells, 1985, 1991; Woody, 1996; Salovey, 1992; Ferreira & Murray; 1983) self-focused attention has indeed been found to be associated with negative affect, and specifically anxiety, an emotion that combines physiological arousal and cognitive worry. The arousal component is known to be implicated in performance, as originally formulated by Yerkes and Dodson (1908). However, research on the association between self-focus and arousal has produced mixed results. Panayiotou and Vrana (1998a) found that self-focused individuals, especially ones who are dispositionally socially anxious, respond with enhanced startle reflexes, similarly to anxious or hyper-vigilant individuals, but effects on autonomic arousal (heart rate or blood pressure) are not observed. Palmar sweat index (a measure of arousal) is increased under audience presence, whereas results under mirror conditions have been mixed (e.g., Paulus, Annis, & Risner, 1978). Kushnir (1981), in a review of the social facilitation literature, found that physiological arousal measures generally failed to indicate arousal increases in social facilitation conditions. Given the inconsistent results, the arousal component of evaluation anxiety does not appear promising as a central part of the mechanism associating self-focus with performance.

Strategic effects: Persistence and withdrawal

Carver's (1979) cybernetic model assigned a central role to success expectations. His model predicts that self-focus should improve performance when participants expect success, because of enhanced motivation and persistence, but should deter performance when subjects expect failure, due to physical or cognitive withdrawal. Hence, it is not assumed that self-focus and evaluation anxiety enhance or deter the actual cognitive processing mechanism, but that they affect behavior by altering the way one approaches a task and allocates resources, such as attention. Empirical evidence supports strategic changes due to the presence of self-focus, in addition to the abundant evidence reviewed above pointing to the central role of success expectancies. Sarason (1975), as cited in Wine, found that test anxious individuals experience more negative thoughts about themselves and are less optimistic about their performance. Panayiotou and Vrana (2002) found that during self-focus and evaluation anxiety subjects approached a recognition task more liberally, making more errors of commission than errors of omission, an effect similar to that obtained by Ferris and Rowland (1983) on a reaction time task. Panayiotou and Vrana (2003) propose that both self-focus and evaluation anxiety rely on the same underlying mechanism of increased motivation for tasks that are considered within one's reach (feel «psyched-up», according to Neiss, 1988) and increased pressure for tasks that are seen as outside the realm of one's ability (Baumeister & Steinhilber, 1984). Carver's model and the extensions that have been proposed by theorists in the social anxiety area (Rapee & Heimberg, 1997) appear to account for both the performance improvement of normal individuals and the performance deterioration of evaluatively anxious people, who may not try enough so as to save face

Figure 1
A model of the effects of success expectations and task and person variables on performance.



(Hormuth, 1986) or who may avoid evaluative tasks altogether.

Directions for future research

The previous review indicates that Carver's cybernetic model and other theories that focus on success expectations offer comprehensive explanations of the performance effects of self-focus. Future studies need to investigate specific participant cognitions during task performance under self-focus and evaluation conditions, in order to identify the process that leads to persistence or withdrawal. Such attempts are being developed within the realm of motivation and within self-efficacy theory. It has been found, for instance, that self-efficacy, the belief that one

can produce the actions required to achieve a goal, is predictive of good performance, aspirations and goal attractiveness (Bandura, 1997). Also, specific beliefs regarding one's access to the necessary resources to accomplish a task determine performance and task approach versus avoidance among school children, and such beliefs are developed through one's interactions with significant others (Skinner, 1997).

The modulation of attention hypothesis also appears promising and deserves further investigation. Further studies can focus on explicating the differences in attention allocation among those who expect failure and those who expect success, as well as among evaluatively anxious and normal individuals. Cognitive paradigms such as the emotional Stroop and dichotic listening tasks, as well as physiological indices of attention can be valuable in such an attempt. Some early evidence indicates that the misallocation of attention among those who become anxious may not represent a cognitive failure but rather a biologically prepared system, so that under conditions of anxiety or physiological arousal attention becomes narrow and diverted toward threat relevant stimuli that are significant for survival (Barlow, 1988; Watson, Wiese, Vaidya, & Tellegen, 1999).

The source of the negative expectations of evaluatively anxious and the positive expectations of normal individuals on easy tasks should be further documented by examining factors such as personality (e.g., private and public self-consciousness, ambitiousness, conscientiousness etc.), task complexity and actual ability. For instance, locus of control is one personality characteristic that has been found to influence one's perception of how stressful a performance situation is (Kolb & Aiello, 1996). Furthermore, no matter how negative the feedback or how high the evaluation anxiety, one who knows he/she is familiar with the task and has the ability to cope will be more likely to expect success (Schmitt, Gilovich, Goore, & Joseph, 1986), so that prior experience or feedback influence future performance (Guerin, 1993). Figure 1 depicts the strategic approach model by taking into account the possible role of other variables, such as person characteristics, task difficulty and prior performance outcome.

In summary, several processes are involved in performance situations under self-focus, including attention modulation and success expectations. The specific mechanisms through which these affect performance need further examination, so that one can better understand how one processes information when self-focused. The roles of other factors, such as personality and task characteristics, need to be documented before one can predict the performance of specific individuals on specific tasks. Broad constructs such as arousal have not proven to be useful. It appears that future research needs to focus on the specific belief systems, motivational processes and cognitive efficiency of individuals with specific characteristics when performing tasks of specified complexity and value, in order to bring to the surface the true picture of what determines performance successes and failures under conditions that make the self salient.

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