

## The spotlight effect and the illusion of transparency in social anxiety

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### Abstract

[Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In: R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: diagnosis, assessment, and treatment* (pp. 69–93). New York: Guilford Press] cognitive model of social phobia suggests that both public and private sources of information contribute to the construction of the self as a social object, which is thought to maintain the disorder. This study used two concepts developed in social psychology that might help to explain the processes that contribute to the development of this constructed self. These two concepts are the spotlight effect [Gilovich, T., Medvec, V. H., & Savitsky, K. (2000). The spotlight effect in social judgment: an egocentric bias in estimates of the salience of one's own actions and appearance. *Journal of Personality and Social Psychology*, 78(2), 211–222] and the illusion of transparency [Gilovich, T., Medvec, V. H., & Savitsky, K. (1998). The Illusion of transparency: biased assessments of others' ability to read one's own emotional states. *Journal of personality and social psychology*, 75(2), 332–346]. Participants performed a memory task under either a low or a high social-evaluative condition. In the high social-evaluative condition, participants reported higher levels of the spotlight effect and more negative evaluation of task performance, compared to participants in the low social-evaluative condition. There were no differences between the two conditions in levels of the illusion of transparency. Surprisingly, however, in the low social-evaluative condition, participants reported higher levels of the illusion of transparency than the spotlight effect, whereas, in the high social-evaluative condition, they reported the opposite. Results suggest that the spotlight effect may be specific to social-evaluative concerns, whereas, the illusion of transparency may represent more general features of social anxiety concerns. Implications of the results for Clark and Wells' cognitive model of social phobia model are discussed.

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Current cognitive-behavioral models of social phobia (Clark, 2001; Clark & Wells, 1995; Rapee & Heimberg, 1997; Turk, Lerner, Heimberg, & Rapee, 2001) propose that when socially phobic individuals fear negative evaluation by others in social situations, they shift attention onto detailed monitoring of themselves—also called self-focused attention. Clark and Wells suggest that individuals use self-focused attention to infer how they appear to others and to judge what others think about them, and they refer to this as “processing of the self as a social object” (p. 72). This type of processing locks socially phobic individuals into a closed system, in which most of the evidence for their anxieties is self-generated and disconfirmatory proof, for example, other people’s responses, is either unavailable or is disregarded.

Self-focused attention is linked to social anxiety, negative self-judgments, and poor social performance in a number of studies (Woody, Chambless, & Glass, 1997). Woody (1996) examined self-focus in relation to anxiety and performance. Half of the socially phobic participants were in an active role (giving a speech), while, the other half were in a passive role (sitting in front of an audience while someone else was speaking). Self-focus was manipulated according to whether participants were talking about themselves (self-focus, active role), or about someone else (non-self-focus, active role), or whether they were being spoken about (self-focus, passive role), or just sitting in front of the audience (non-self-focus, passive role). Participants in the passive role reported significantly higher anticipated, self-rated, and observer-rated anxiety in the self-focus condition, compared to those in the non-self-focus condition. Woody’s (1996) results suggest that self-focus increases self-rated and observed anxiety. More recently, Woody and Rodriguez (2000) showed that self-focused attention increased anxiety in socially phobic participants and controls, but that this increase in anxiety affected self-ratings of performance differently in the two groups. Observers rated the performance of both groups equally, but the control group gave higher ratings of their performance than the patient group, whose ratings were closer to observer’s ratings, indicating a positive bias in participants’ ratings in the control group. A reduction in self-focused attention is also associated with improvements in anxiety after cognitive-behavioral therapy for social phobia (Hofmann, 2000; Woody et al., 1997).

Self-focused attention and the construction of the self as a social object involve input from both internal and external sources of information (Turk et al., 2001). Clark (2001) suggests that socially phobic individuals use three types of internal information to construct a negative self-impression. One, feeling anxious is associated with appearing anxious. Two, many patients with social phobia experience spontaneously occurring images in which they view themselves from an observer’s perspective. Three, more diffuse types of ‘felt sense’ can add to a negative self-impression. Turk et al. also suggest that memories of actual self-images and prior social experiences both contribute to this self-impression. Nevertheless, clinical observations also suggest that, in addition to focusing on their internal states, some socially phobic individuals believe that other people can see or detect aspects of their internal selves; for example, their thoughts, images, or feelings.

Clark and Wells (1995) appear to be less clear about the types of external information that socially phobic individuals use to construct a negative self-impression. However, Turk et al. (2001) suggest that feedback from others about one’s appearance (e.g., weight, clothes, and actual physical defects) and behavior (e.g., posture, eye contact, and level of participation in conversations) add to a distorted self-impression. Collectively, it seems that both internal and external processes contribute to individuals’ construction of themselves as a social object during social situations. However, at the moment, we do not fully understand exactly how the different processes contribute to a distorted self-view.

How can we advance our understanding of the respective roles of internal and external processes in developing a negative and distorted self-impression? There are two concepts developed in social psychology that might help to explain the processes that contribute to its development. These two concepts are the spotlight effect (Gilovich, Savitsky, & Medvec, 2000) and the illusion of transparency (Gilovich, Medvec, & Savitsky, 1998). The spotlight effect refers to the tendency for people to overestimate the extent to which they believe that others see and attend to their *external* appearance on a regular basis: people believe that the spotlight shines more brightly on them than it actually does (Gilovich et al., 2000). Gilovich et al. demonstrated the spotlight effect by asking participants to wear an embarrassing T-shirt (picture of Barry Manilow) and walk in on a group of people who were filling out questionnaires. When asked to guess how many people noticed their shirt, participants grossly overestimated the number. In other words, participants allowed their own focus on the shirt to distort their estimates of how much it would be noticed by others. This also led participants to overestimate the number of other people who would be able to identify them based on their T-shirt.

In contrast, the illusion of transparency refers to the tendency for people to overestimate the extent to which their *internal* thoughts, feelings, and attitudes ‘leak out’ and are seen by others. Some people feel that the self is transparent and is out there for the world to see. According to Gilovich et al. (1998), some individuals feel that other people can discern their internal states by noting signs of leakage in their external appearance and behavior. Gilovich et al. also suggest that the illusion of transparency is a relatively transitory or visceral state, that is, it reflects brief episodes of nervousness, disgust, or alarm. In one set of studies, Gilovich and colleagues found that participants, who were asked to lie, overestimated the number of observers who would notice their deception. In another study, participants who sampled foul-tasting drinks in view of an observer believed that their disgust was more apparent than was actually the case (Gilovich et al.).

Both the spotlight effect and the illusion of transparency are typically measured by comparing an individual’s predicted estimates of how apparent his or her internal and external states are to observers, with the actual estimates of observers. A significant difference between predicted and actual estimates is considered to derive from the individual’s feelings of ‘transparency’ and/or being in the ‘social spotlight’ and his or her inability to form an accurate self-representation. Indeed, the way in which the spotlight effect and the illusion of transparency are measured is similar to studies showing a discrepancy between socially anxious individuals’ self-ratings of performance and ratings provided by others (Abbot & Rapee, 2004; Alden & Wallace, 1995; Mansell & Clark, 1999; McEwan & Devins, 1983; Mellings & Alden, 2000; Rapee & Lim, 1992; Stopa & Clark, 1993).

Why might people be vulnerable to the spotlight effect and/or the illusion of transparency? Gilovich et al. (1998, 2000) suggest that both effects result from an *anchoring and adjustment process*. People are typically quite focused on their own actions and appearance. They recognize that other people are likely to be less focused on them than they are themselves, and try to adjust for that fact, albeit insufficiently, when anticipating how they are seen by others. Thus, people overestimate how obvious their public and/or private selves are to others. Gilovich et al. (2000) demonstrated this anchoring and adjustment process by showing that the spotlight effect was significantly diminished when participants made their estimates after they had time to get used to wearing an embarrassing T-shirt. Because participants were less self-focused on the T-shirt, their estimates of how many other people would notice it began from a lower anchor, which resulted in a reduction of the spotlight effect. In contrast, for participants who entered the room straightaway, their judgments began with a powerful representation of how salient the T-shirt was

in their own minds. The adjustment away from their own representation thus started from a very high anchor. More concerned with the shirt themselves; they concluded it would be more noticeable to others too.

Gilovich et al. (1998) have provided data in support of the anchoring and adjustment interpretation of the illusion of transparency. First, they found that the illusion of transparency was greatest in participants who had the highest private self-consciousness scores; in other words, those who start from a higher anchor. These individuals, because of their self-focus, were likely to have an intense sense of their own internal experience. Second, Gilovich et al. found that the illusion of transparency existed only when participants were experiencing an obvious emotional state. Specifically, participants exhibited the illusion of transparency when they were lying, but not when telling the truth, and when they had sipped a foul-tasting drink, but not a pleasant one. Thus, when there was no pronounced internal experience to adjust from, there was no illusion of transparency.

If the anchoring and adjustment process is applied to social anxiety, it suggests that individuals may use their own internal feelings of anxiety and the accompanying self-representation as an anchor, and insufficiently correct for the fact that others are less privy to those feelings than they are themselves. Consequently, they overestimate the extent to which their anxiety is obvious to onlookers. In fact, Clark and Wells (1995) suggest that socially phobic people enter social situations in a heightened self-focused state, namely, from a raised emotional anchor, which makes it difficult for them to set aside public and private self-knowledge and focus on the task.

In socially anxious people, the degree of public scrutiny is likely to be critical in triggering the spotlight effect and/or the illusion of transparency. This is because both effects are linked to enhanced accessibility of self-relevant information (e.g., negative thoughts and images). This information will be most accessible under conditions of high public scrutiny. For example, in an unselected sample, Vorauer and Ross (1999) found that participants reported higher levels of the illusion of transparency under high social-evaluative conditions, where they believed they would be evaluated by a conversational stooge, than under low social-evaluative conditions, where they were not given this expectation. Furthermore, Vorauer and Ross seem to suggest that the illusion of transparency is a stable trait. This contrasts with Gilovich et al.'s (1998) suggestion that the illusion of transparency is a relatively transitory state. If the illusion of transparency is more trait than state like, then we would expect it to be less prone to manipulation and vice versa.

Studies have not directly examined the relationship between social anxiety and the spotlight effect or the illusion of transparency. In addition, to our knowledge, the spotlight effect and the illusion of transparency have not been investigated together in a single study. The main aim of this study was to investigate whether high socially anxious participants would report higher levels of the spotlight effect and/or the illusion of transparency during a memory task, which was performed under high and low social-evaluative conditions. Overestimation of the features of one's public and private self would constitute evidence for the spotlight effect and the illusion of transparency respectively; relative to an independent assessor's estimations. To assess the spotlight effect and the illusion of transparency, as well as aspects of task performance, we constructed the Self-Awareness and Task Performance Questionnaire (SATP-Q). The SATP-Q contained a modified version of the Situational Self-Awareness Scale (SSAS: Govern & Marsch, 2001) that measures public and private self-awareness. Public self-awareness is a situational tendency to focus attention on observable aspects of self (e.g., physical features) (Govern & Marsch). Private self-awareness is a situational tendency to focus on internal aspects of self, such as memories and feelings of physical pleasure or pain (Buss, 1980).

The Clark and Wells (1995) model of social phobia focuses largely on the *content* of self-focused attention, for example, on negative thoughts and distorted images. However, it is also important for models to consider the *process* of self-focused attention. The spotlight effect and the illusion of transparency may help us to explain the processes that contribute to self-focused attention and the construction of the self as a social object in social anxiety. For instance, the illusion of transparency might help to explain why some socially phobic individuals believe that other people can read their internal states. Clark and Wells suggest that self-focused attention is a key maintaining factor in anxiety, because it prevents socially phobic individuals from noticing social feedback that might contradict their negative self-beliefs. Therefore, from a therapeutic viewpoint, improved knowledge about processes that are used in the construction of the self as a social object, may lead to a more effective way of modifying socially phobic individuals' mistaken impression of how the self appears to others; for example, by training them to 'anchor' on their own internal and/or external feelings of anxiety and/or processes of judgment in a more neutral fashion. In sum, the results of this study have the potential to both inform current cognitive models of social phobia and to help develop more effective treatments for the disorder.

In line with previous research (Vorauer & Ross, 1999) and with cognitive models of social phobia (Clark & Wells, 1995; Rapee & Heimberg, 1997), we predicted that socially anxious participants would report higher levels of the spotlight effect and the illusion of transparency during a memory task that was performed under high compared to under low social-evaluative conditions. This prediction was based on our idea that in the high social-evaluative condition, participants would be more likely to access self-relevant information, which would produce an overestimation of the visibility of their public and private selves. We also predicted that participants would underestimate their task performance and evaluate it in a more negative way under high compared to under low social-evaluative conditions.

## 1. Method

### 1.1. Design

This study used a between-subjects design and participants were allocated to either the high or the low social-evaluative condition. In the high social-evaluative condition, participants performed a brief memory task that was openly videotaped. They were told that their task performance would be evaluated later by a group of experts in communication skills. Participants in the low social-evaluative condition performed the same memory task, but they were told that the experimenter was only interested in coding the number of 'significant events' they could recall. However, participants in the low social-evaluative condition were secretly videotaped with a hidden camera. Participants then completed the SATP-Q, as well as measures that assessed fear of negative evaluation and depression. An independent assessor, who was blind to the experimental conditions, watched videotapes of participants' task performances and completed an assessor's version of the SATP-Q.

### 1.2. Participants

Participants were students at the University of Southampton. They were recruited from a larger sample of students who had filled in the Brief Fear of Negative Evaluation Scale (BFNES; Leary, 1983) at screening. This scale was used to select individuals who had scores of  $\geq 36$ . This cut-off point corresponded to the mean BFNES score ( $M = 35.7$ ,  $S.D. = 8.10$ ; Leary, 1983). To be

Table 1  
Participant characteristic means and standard deviations (in parentheses) in each social-evaluative condition

	LSE condition	HSE condition	<i>F</i> (1, 52)	<i>p</i>
BFNES (screen)	42.46 (5.24)	44.07 (5.22)	1.26	ns
BFNES (test)	44.30 (6.64)	46.11 (7.00)	0.97	ns
BDI-II	8.92 (7.06)	13.33 (10.82)	3.06	ns

Note: BFNES, Brief Fear of Negative Evaluation Scale (screening and testing); BDI-II, Beck Depression Inventory; LSE, low social-evaluative; HSE, high social-evaluative.

included in the analysis, participants had to score  $\geq 36$  on this measure when re-tested just after the experiment. This produced a moderate to high socially anxious sample ( $N = 60$ ), with 30 individuals in each social-evaluative condition (high social-evaluative condition: 27 females, 3 males; low social-evaluative condition: 26 females, 4 males).

Participants in the two conditions did not differ significantly on either age (high social-evaluative condition,  $M = 20.16$ , S.D. = 3.68; low social-evaluative condition,  $M = 19.26$ , S.D. = 2.57),  $t(58) = -1.09$ , ns,  $\eta^2 = 0.01$  or on gender,  $\chi^2(1, N = 60) = 0.162$ , ns. Participants also completed the Beck Depression Inventory-II (BDI-II: Beck, Steer, & Brown, 1996).

Given the small number of men (three in the high social-evaluative condition; four in the low social-evaluative condition), we report the results for the women only<sup>1</sup> ( $N = 53$ ; age, high social-evaluative condition,  $M = 19.90$ , S.D. = 3.36; low social-evaluative condition,  $M = 18.77$ , S.D. = 0.91,  $t(51) = -1.64$ , ns,  $\eta^2 = 0.01$ ). A series of analyses of variance (ANOVAs) were performed on the descriptive data, with a between-group factor of social-evaluative condition (high and low). There were no significant differences between the two conditions on any of the standardized measures of social anxiety or depression. It is worth noting that participants' BDI-II scores were in the mild to moderate range (see Table 1 for means). The BFNES scores at screening and at testing were strongly correlated,  $r = 0.73$ ,  $p < 0.001$ .

### 1.3. Descriptive measures

#### 1.3.1. Brief Fear of Negative Evaluation Scale (Leary, 1983)

The 12-item BFNES assesses the fear of receiving negative evaluation from other people, which is considered one of the hallmarks of social phobia (American Psychiatric Association, 2000). The BFNES uses a five-point Likert-type rating scale, ranging from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic of me*), rather than the true–false format of the original Fear of Negative Evaluation scale (FNE: Watson & Friend, 1969). Total BFNES scores range from 12 to 60. Undergraduates' responses correlate highly with the original FNE scale ( $r = 0.96$ ; Leary, 1983) and the BFNES demonstrates both high internal consistency ( $\alpha = 0.90$ – $0.91$ ) and four-week test–retest reliability ( $r = 0.75$ ) in undergraduate samples (Leary, 1983). More recent support was obtained for the reliability and convergent and discriminant validity of the BFNES in a nonclinical, nonstudent sample (Duke, Krishnan, Faith, & Storch, 2006), and in patients with social phobia (Collins, Westra, Dozois, & Stewart, 2005; Weeks et al., 2005). This study used the BFNES, rather than the FNE, because its shorter length and increased sensitivity from using Likert-style rather than dichotomous response options make the BFNES an appealing

<sup>1</sup> The results were the same whether we included women only or the full sample.

alternative (Carleton, McCreary, Norton, & Gordon-Asmundson, 2006; Leary, 1983; Rodebaugh et al., 2004).

In addition, consistent with criticisms of reverse-worded items being confusing to participants, namely, causing erroneous responding (Collins et al., 2005; Duke et al., 2006; Rodebaugh et al., 2004; Weeks et al., 2005), in the present research, the four negatively worded items were slightly reworded so that all the BFNES items were positively worded; that is, reflecting higher levels of social-evaluative concern. The BFNES, straightforwardly worded, has demonstrated excellent internal consistency ( $\alpha = 0.95\text{--}0.97$ ), sensitivity, and validity (Collins et al.; Carleton et al., 2006), and is comparable to Leary's (1983) levels. Cronbach's  $\alpha$  of 0.83 (combined screen and test BFNES scores) was obtained in this current sample, which is similar to levels reported for the straightforwardly worded BFNES (Collins et al.; Carleton et al.; Rodebaugh et al.).

### 1.3.2. Beck Depression Inventory-II (Beck et al., 1996)

The BDI-II is a 21-item self-report measure for assessing the presence and severity of depression over the past two weeks, including day of testing. The scale uses a multiple-choice format (0–3) with total scores ranging from 0 to 63. The BDI-II demonstrated excellent reliability in a college student sample ( $\alpha = 0.90$ ; Storch, Roberti, & Roth, 2004) and concurrent validity with other measures of depression (Beck et al., 1996; Whisman, Perez, & Ramel, 2000).

## 1.4. Outcome measures

### 1.4.1. Self-Awareness and Task Performance Questionnaire

The SATP-Q contained a modified version of the Situational Self-Awareness Scale (Govern & Marsch, 2001). The original SSAS is a nine item, three items per subscale, questionnaire that measures levels of public and private self-awareness and awareness of surroundings. In this study, only the three public and the three private subscale items of the SSAS were used, which were embedded in the SATP-Q. To ensure that the SSAS measured self-awareness during the memory task, the wording, "Right now, I am . . ." was changed to "During the memory recall task, I was . . ." Each item was accompanied by a 4-point scale, which ranged from 1 (*do not agree at all*) to 4 (*agree very much*). Two indices of public and private self-awareness were derived by aggregating responses to the three public and the three private subscale items. To measure the spotlight effect and the illusion of transparency, we compared participants' predicted self-ratings of public and private self-awareness on the modified SSAS with the assessor's ratings of how well he or she could detect participants' public and private self-awareness concerns during the memory task. The spotlight effect and the illusion of transparency thus reflect the discrepancy between the extent to which participants believe observers can see or detect their internal and external states, and the observer's ability to do so. The internal consistency of the public and private self-awareness subscales on the original SSAS is good ( $\alpha = 0.82$  and  $0.70$ , respectively), while the test–retest correlations are  $0.78$  for the public self-awareness subscale and  $0.58$  for the private self-awareness subscale (Govern & Marsch). The SSAS can also detect differences in public and private self-awareness produced by laboratory manipulations, and is sensitive to changes in self-awareness within individuals over time and across situations (Govern & Marsch). Cronbach  $\alpha$ 's of  $0.81$  (public self-awareness subscale) and of  $0.67$  (private self-awareness subscale) were obtained in this study.

The SATP-Q also contained three items that assessed participants' performance during the memory task. These items were modified versions of items found in a questionnaire developed by

Savitsky and Gilovich (2003). The three items assessed task performance in terms of ‘overall quality’, ‘effectiveness’, and ‘expressiveness’. The overall score on the task performance subscale was the sum of the three-task performance items, with positive behaviors reverse scored, so that low scores indicated better task performance. A fourth item asked participants to rate whether they evaluated their task performances in a positive or a negative way, on a +3 (*positive*) to –3 (*negative*) bipolar scale.

#### 1.4.2. Assessor’s SATP-Q

A psychology postgraduate, who acted as an independent assessor, watched videotapes of participants’ task performances and completed an assessor’s version of the 10-item SATP-Q. The internal consistency of the public and private self-awareness subscales on the assessor’s SATP-Q was good ( $\alpha = 0.85$  and  $0.81$ , respectively). The assessor assessed participants’ public self-awareness (i.e., their external or public features of self) by rating how anxious they looked during the memory task, how poorly they performed it, and by rating how much their overall performance was not up to scratch. The assessor assessed participants’ private self-awareness (i.e., their internal or private aspects of self) by rating whether he could sense their innermost feelings and thoughts, and whether he could sense that they were reflecting on their lives. To assess reliability of the assessor’s ratings on the SATP-Q, another psychology postgraduate also rated 20 participants’ task performances (10 from each of the high and the low social-evaluative conditions). Neither assessor was aware of which condition the participant was in, and viewing of the videotapes was counterbalanced across the two conditions. Inter-rater reliability, based on Pearson correlations coefficients was  $0.61$ ,  $0.67$  ( $p < 0.01$ ), and  $0.61$  ( $p < 0.05$ ) for ratings of public and private self-awareness and task performance, respectively.

#### 1.5. Materials

The following materials were used; wireless video and audio camera with radio AV receiver; combined color television and videocassette recorder; video-camcorder and tripod stand; tape-cassette recorder with microphone; and mock 2004 ‘Significant Life Events’ calendar.

#### 1.6. Procedure

In the high social-evaluative condition, participants performed the memory task standing up in front of a video camera mounted on a tripod. In the low social-evaluative condition, participants performed the same task sitting down at one end of a table that was approximately 4 ft long. At the opposite end of the table, a number of box files, which were filled with papers, were positioned vertically on the table. The middle box file concealed the miniature ‘spy’ or covert camera, which was positioned so that it was directly in front of the participant and at head and shoulder level. Because participants in the low social-evaluative condition had been told that the experimenter was only interested in coding the number of memories they could recall, they performed the recall task into an audiocassette recorder that was attached to a microphone. Because the memory task was a sham procedure, determining that memory recollection was correct was not necessary or relevant to the aims of the current study.

Participants reported to the laboratory individually. They first read and signed a consent form. Participants were then given the following instructions. The italicized text in brackets indicates instructions given to participants in the low social-evaluative condition:



This next part of the experiment assesses your memory recall. I will give you a 2004 calendar and ask you to choose a month that was significant for you. Then I will ask you to speak for two-minutes on the best and worst things that happened to you during that month. Your memory recall will be videotaped, so that, later, a group of researchers who are experts on communication skills can assess your recall performance [*What you speak about will be audiotaped, so that, later, I can code the number of memories you recalled for that month. I'm not interested in 'how' you perform the task, only the number of memories you recall*]. I am going to give you two-minutes to choose the month and think about what happened during that month. Please use the calendar, notepad, and pens provided, to aid you in your memory recall. However, I do not want you to use these aids during the task. I will leave the room for those two-minutes and I will come back into the room at the end of that time. After returning, I will start the video recorder [*tape recorder*] and leave the room again. Please start the recall task as soon as I leave the room. You will have two-minutes to perform the task and I will come back into the room at the end of that time. When you start the task, it is important that you try to keep it going for the entire two-minutes and remain focused on the camera. Do you have any questions?

After delivering the instructions, the experimenter left the room for the two minutes preparation period and went to an adjacent room that contained the TV/video combo, which was connected to the covert camera in the first room via a receiver. After the preparation period, the experimenter returned to the first room to start either the audio or the videotape recorder. Participants performed the memory task alone. After the task, participants completed the SATP-Q and descriptive measures, and were debriefed.

## 2. Results

### 2.1. Manipulation check

To help assess whether the experimental manipulation was successful, participants' anxiety levels during the low and high social-evaluative conditions were compared. Specifically, 'happiness', 'anger', 'depression', and 'anxiety' were measured on 0 (*not at all X*) to 100 (*extremely X*) visual analogue scales. Anxiety was the key measure and the other moods were used as filler scales. Participants' anxiety scores were positively skewed, so they were log-transformed, which was successful in achieving normality. An independent *t*-test showed that, as predicted, participants reported significantly more anxiety during the memory task that was performed in the high social-evaluative condition ( $M = 68.52$ ,  $S.D. = 22.31$ ) than in the low social-evaluative condition ( $M = 40.00$ ,  $S.D. = 10.95$ ),  $t(51) = -5.47$ ,  $p < 0.001$ ,  $\eta^2 = -0.01$ . These results suggest that the experimental manipulation was successful in directing the degree of social-evaluation (low or high) that participants faced during the memory task.

### 2.2. The spotlight effect and the illusion of transparency under low and high social-evaluative conditions

To create an index of the spotlight effect and the illusion of transparency, difference scores were calculated by subtracting participants' public and private self-awareness scores on the modified SSAS from the assessor's scores on the same measures. Higher positive difference scores thus indicated higher levels of the spotlight effect and the illusion of transparency.

Assessor's scores on the public and private self-awareness subscales of the modified SSAS were positively skewed, so all scores on the modified SSAS were log-transformed, which was successful in achieving normality. However, the untransformed scores are reported in the figures, tables, and text, as these are easier to interpret.

Difference scores were analyzed using independent *t*-tests, and as predicted, participants in the high social-evaluative condition reported higher levels of the spotlight effect than participants in the low social-evaluative condition,  $t(51) = -5.26, p < 0.001, \eta^2 = -0.01$ . However, contrary to our prediction, participants did not significantly differ in levels of the illusion of transparency between the two conditions,  $t(51) = -0.31, ns$ . Paired *t*-tests showed a significant difference between the spotlight effect and the illusion of transparency in the high social-evaluative condition (spotlight effect,  $M = 4.37, S.D. = 2.86$ ; illusion of transparency,  $M = 2.04, S.D. = 2.46$ ),  $t(26) = -4.25, p < 0.001, \eta^2 = 0.03$ . Conversely, participants in the low social-evaluative condition reported higher levels of the illusion of transparency than the spotlight effect (illusion of transparency,  $M = 1.85, S.D. = 2.00$ ; spotlight effect,  $M = 0.69, S.D. = 2.17$ ),  $t(25) = 2.00, p < 0.05, \eta^2 = 0.08$  (see Fig. 1). Thus, the spotlight effect was only present under high social-evaluative conditions, whereas, the level of social-evaluation participants faced during the memory task did not influence the illusion of transparency, which was comparable under both conditions.

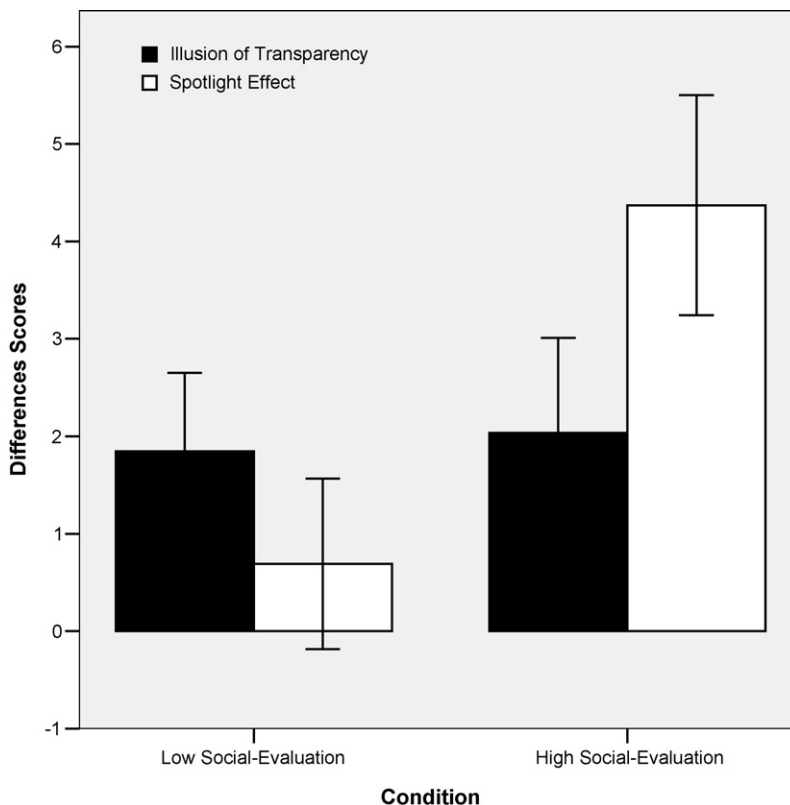


Fig. 1. Mean ratings of the spotlight effect and the illusion of transparency, for participants in the low and in the high social-evaluative conditions.

### 2.3. Task performance and evaluation of task performance (positive and negative)

Participants' performance quality, effectiveness, and expressiveness ratings, as well as the assessor's ratings of participants' performance ratings, were highly correlated with each other in both the low ( $r = 0.77$ ;  $r = 0.87$ ) and the high ( $r = 0.83$ ;  $r = 0.91$ ) social-evaluative conditions, respectively. Consistent with Savitsky and Gilovich's (2003) findings, we therefore collapsed these three items into an index of self-and-assessor-rated task performance ( $r = 0.80$ ;  $r = 0.89$ ), respectively.

An index of participants' estimates of their task performances and evaluation of their task performances (positive and negative) were calculated in the same way that the spotlight effect and illusion of transparency scores were calculated. Difference scores were analyzed using an independent *t*-test. However, contrary to our prediction, participants did not significantly underestimate their task performance in either the high ( $M = 9.30$ , S.D. = 2.00) or in the low ( $M = 8.46$ , S.D. = 1.98) social-evaluative conditions,  $t(51) = -1.53$ , ns.

An independent *t*-test, however, showed that, as predicted, in the high social-evaluative condition, participants evaluated their task performance in a more negative way ( $M = -1.41$ , S.D. = 1.25), whereas, in the low social-evaluative condition, they evaluated it in a more positive way ( $M = 0.42$ , S.D. = 1.30),  $t(51) = 5.23$ ,  $p < 0.001$ ,  $\eta^2 = 0.10$ ; relative to the estimations of the assessor. Thus, participants did not underestimate their task performance, in terms of overall quality, expressiveness, or effectiveness; however, they did evaluate it in a more negative way in the high, compared to in the low social-evaluative condition.

### 3. Discussion

The aim of this study was to explore whether the spotlight effect and/or the illusion of transparency exist in social anxiety. That is, whether socially anxious individuals would overestimate the extent to which other people notice and attend to their internal and/or external states. Our results are largely consistent with the prediction stated in the introduction. Socially anxious participants reported higher levels of the spotlight effect and evaluated their task performance in a more negative way in the high social-evaluative condition. However, contrary to our prediction, there was no difference in the illusion of transparency or in task performance between the two conditions. Surprisingly, though, in the low social-evaluative condition, participants reported higher levels of the illusion of transparency than the spotlight effect, whereas, in the high social-evaluative condition, they reported the opposite. Participants also reported more positive evaluation of task performance in the low social-evaluative condition.

Gilovich et al.'s (1998, 2000) findings showed that non-socially anxious individuals overestimate the extent to which other people can discern their internal and external states, indicating the illusion of transparency and the spotlight effect. Our findings demonstrate that the spotlight effect and the illusion of transparency also operate in socially anxious individuals and show that the level of social-evaluation influences the spotlight effect. However, our results are not consistent with Vorauer and Ross (1999), who found that the illusion of transparency was more evident under high, compared to under low social-evaluative conditions. In our study, the illusion of transparency was similar in both conditions. This finding is also inconsistent with Gilovich et al.'s (1998) idea that the illusion of transparency is a relatively transitory state and is prone to manipulation. In the current study, the illusion of transparency appeared to be constant across conditions, suggesting that it may be more enduring, and trait like. If this effect is replicated in subsequent studies, it suggests that private self-awareness and its effect, the illusion

of transparency, are relatively stable traits. George and Stopa (2006) also found that high socially anxious participants' private self-awareness did not change during two different types of conversations with stooges (one in front of a mirror and one in front of a video camera), whereas, low socially anxious participants' private self-awareness reduced during two conversations. George and Stopa's results suggest that high socially anxious participants stayed aware of their internal selves, whereas, low socially anxious participants shifted attention from internal aspects of themselves during the conversation.

On the one hand, the illusion of transparency might help to clarify why socially anxious individuals appear to remain aware of their internal selves in social situations. That could be because they believe that negative aspects of their private selves such as negative thoughts about the self and/or images manifest in their public exterior, so that, when they feel anxious, they infer that other people are privy to their internal selves, and therefore can see this anxiety. This assumption then causes them to shift and maintain attention on their internal states (Clark & Wells, 1995). Thus, they become trapped in a vicious circle, in which they are constantly checking for any signs that their internal states 'leak out' into their external appearance, and are available for others to see. In this way, anxiety is maintained because disconfirmatory evidence such as other people's positive responses becomes unavailable or is ignored (Clark & Wells).

On the other hand, how do we explain the relative stability of the illusion of transparency across the high and low social-evaluative conditions in this study? We think that the illusion of transparency might represent a cognitive vulnerability to social anxiety. That is, although internal information can be experienced simply as a state elicitation, such information may also develop into a more durable cognitive disposition, namely, the illusion of transparency; that occurs independently of whether individuals believe they are being socially evaluated or not. The illusion of transparency may therefore be a phenomenon that precedes and predicts anxiety in time, and is not its result. Some support for this idea comes from our finding that the illusion of transparency showed no association with either trait social anxiety or situational anxiety.

How do we explain elevated levels of the illusion of transparency in the low social-evaluative condition? One possible explanation is that participants might not have felt under public scrutiny, and consequently, were less concerned about presenting a confident public self. Thus, they may have been more task focused, which is associated with lower levels of social anxiety (Bögels & Lamers, 2002). In support of this proposal, participants in the low social-evaluative condition reported less anxiety and evaluated their memory recall in a more positive way than participants in the high social-evaluative condition, relative to the assessor's estimations of participants' recall. This focus on the private self, for example, in recollecting 'significant events' from memory, could explain higher levels of the illusion of transparency in this condition. In contrast, in the high social-evaluative condition, participants were more likely to fear public scrutiny, and thus, to focus attention on observable aspects of self (Clark & Wells, 1995). This suggests that they may have been less task focused, which is associated with higher levels of social anxiety (Bögels & Lamers). In support of this proposal, participants in the high social-evaluative condition reported more anxiety and evaluated their memory recall in a more negative fashion than participants in the low social-evaluative condition, relative to the assessor's estimations of participants' speech performance. This focus on the public self could explain higher levels of the spotlight effect in this condition.

What other factors might account for elevated levels of the spotlight effect in the high social-evaluative condition? Clark and Wells (1995) assume that socially phobic individuals develop a number of negative beliefs about themselves and their social world, for example, high standards for social performance such as, 'I must not show any signs of poor performance.' High standards

create anxiety because they are hard to attain, and so individuals spend a lot of time worrying that they may fail to communicate their desired, positive impression to others. Doubting their ability to communicate a positive impression, socially anxious individuals mistakenly assume that others will negatively evaluate them. High levels of social-evaluation are likely to facilitate and intensify doubts about their public self, and thus leave them more susceptible to the spotlight effect. Future research could examine the relationship between dysfunctional beliefs and the spotlight effect in social anxiety.

In addition, Clark and Wells (1995) suggest that individuals with social phobia hold conditional beliefs concerning social-evaluation (e.g., 'If my memory recall is poor, then others will think I look stupid') and unconditional beliefs about the self (e.g., 'I'm an idiot'). The latter type of belief is assumed to be triggered, and seem most compelling, when individuals fear being socially evaluated. Such beliefs may have led participants in this study to appraise the high social-evaluative situation as threatening, and consequently result in them exaggerating the saliency of their public self-image; leading to higher levels of the spotlight effect.

It is also worth noting that the spotlight effect was positively associated with situational anxiety, but not trait social anxiety. This suggests that the spotlight effect may only be debilitating when accompanied by relatively high levels of situational anxiety. Thus, the spotlight effect seems to be relatively unstable or prone to change, depending on the level of anxiety and/or social-evaluation experienced. Characteristics of the audience (e.g., attractiveness or significance), as well as features of the situation (e.g., level of anonymity of the socially anxious individual) may influence the level of the spotlight effect and anxiety experienced.

As mentioned in the introduction, both the spotlight effect and the illusion of transparency appear to derive from an anchoring and adjustment process (Gilovich et al., 1998, 2000). People seem to be quite focused on their public or on their private selves. Certainly, they understand that others are usually less attentive to their appearance and behavior or have less access to their internal states than they themselves have, and they consider that knowledge when trying to imagine how they appear to others. As is typically the case with such anchoring and adjustment processes, however, the adjustment is insufficient, and so people end up believing that the perspective of others is more like their own than is actually the case. This anchoring and adjustment process might help to explain how socially anxious individuals use internal and external sources of information to construct a negative impression of themselves as a social object. For instance, individuals might realize that other people are less focused on them than they are on themselves, but the adjustment they make in light of this knowledge begins from a higher emotional anchor (e.g., feeling anxious is associated with looking anxious). The net result is that the individual feels that his or her internal or external states are more visible to others than is really the case. Thus, the spotlight effect and/or the illusion of transparency may confer added veracity to the individual's belief that he or she is an object of others' attention.

Given the preliminary nature of our findings, implications for clinical practice are speculative; however, we can offer some tentative suggestions. For example, using video-feedback techniques to adjust the strength of the initial anchor may prove beneficial. Harvey, Clark, Ehlers, and Rapee (2000) showed that a socially anxious individual's normally biased perspective could be modified with video-feedback so that it is more consistent with the perspective of observers. Video-feedback would allow individuals to see their true, observable self directly, and increase the likelihood of detecting corrective responses. Socially anxious individual's processes of judgment could therefore start from a lower anchor value, that is, adjust downward from the anchor of their own experience. When there is no obvious internal and/or external anxiety or experience to adjust from, there is unlikely to be any of the spotlight effect and/or the illusion of transparency.

One of the strengths of this study is that it examined two different processes that might contribute to the construction of the self as a social object, namely, the spotlight effect and the illusion of transparency, and showed that these processes change in response to the two social-evaluation manipulations. The results are consistent with Coles, Turk, Heimberg, & Fresco (2001) proposal that socially anxious individuals function within a “multiple task paradigm” (p. 295), in which they have to simultaneously monitor their immediate surroundings for signs of public scrutiny, monitor their internal and external states for imperfections that may elicit public scrutiny from others, and engage in social interaction. While Clark and Wells’ (1995) model provides a valuable framework for understanding the types of internal information that are used to generate a negative self-representation, it might benefit from a more dynamic and shifting view of a self-representation that includes a focus on both internal and external attention.

There are some limitations to this study. First, because of modifications made to the Brief Fear of Negative Evaluation Scale, caution should be exercised when comparing this study’s cut-off score for the BFNES with Leary’s (1983) cut-off score for it. However, note that, the mean (straightforwardly worded) BFNES score used in this study is comparable to other nonclinical samples (Collins et al., 2005; Rodebaugh et al., 2004; Weeks et al., 2005). Moreover, the reliability coefficient obtained in this study is comparable to levels reported in previous research with the BFNES (Leary), and current research using the straightforwardly worded BFNES (Collins et al.; Carleton et al., 2006; Rodebaugh et al.; Weeks et al.). Nevertheless, additional research is required that compares Leary’s total BFNES with the total straightforwardly worded BFNES in both clinical and nonclinical samples. Second, the public and private self-awareness factors on the SSAS only covered a small range of public and private concerns. Hope and Heimberg (1988) point out that those patients with social phobia participating in their study showed a wide range of public self-awareness. However, a longer instrument, on which participants respond to many self-related public and private items, could serve to induce self-awareness (Govern & Marsch, 2001).

A further question concerns the generalizability of the current findings to a wider population. Our experimental sample was female and we do not know whether these effects would generalize to men. Further, this study examined a student population; therefore, research is needed to determine whether the same pattern of results would emerge with socially phobic individuals. Lastly, inter-rater reliability for ratings of public and private self-awareness was modest. However, the modest rating for private self-awareness is perhaps not surprising, considering the highly subjective nature of asking observers to rate whether they can sense individuals’ internal states.

In summary, our results suggest that the spotlight effect might be specific to social-evaluative concerns, whereas the illusion of transparency may reflect a more general feature of social anxiety concerns. The results provide support for Turk et al.’s (2001) suggestion that socially anxious individuals use both internal and external sources of information to infer how they are coming across to others. However, a more precise understanding of how the spotlight effect and the illusion of transparency operate in social anxiety is needed. For example, concerning the illusion of transparency, it is not clear whether individuals believe that others can detect their internal states by reading their external appearance – as proposed by Gilovich et al. (1998) – or whether it might operate in a different way. For example, Kenny and DePaulo (1993) have suggested that people can assume their inner self is obvious—without referring to their behavior at all. Further research is needed to clarify this question.

In addition, in order to be confident about the pattern of changes in the spotlight effect and the illusion of transparency that we found here, this study needs replication with different types of

social situations and different clinical populations. For example, we might expect the spotlight effect to be greater for patients with social phobia than say patients with agoraphobia or blood/injury phobia, who apparently do not engage in processing of the self as a social object (Wells & Papageorgiou, 1999). Nevertheless, it does appear that, not only does the social spotlight shine brightly on socially anxious persons' public selves, but it also shines through to their private selves too.

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