

The Trouble With Friendly Faces: Skilled Performance With a Supportive Audience

Jennifer L. Butler and Roy F. Baumeister
Case Western Reserve University

In 3 experiments, supportive audiences were associated with unexpected performance decrements (i.e., “choking” under pressure). On a difficult, skill-based task, participants were more likely to fail when observed by supportive audiences than when observed by nonsupportive audiences. When the criterion for success was easy, supportive audiences had no effect. With a difficult criterion, supportive audiences elicited cautious, protective strategies that were associated with poor performance: Speed decreased without improving accuracy. Despite impairments caused by supportive audiences, performers found supportive audiences more helpful and less stressful than neutral or adversarial audiences, and participants believed (wrongly) that they performed better with a supportive audience. Results suggest that people are not aware of debilitating effects of supportive audiences and may opt for emotional comfort rather than objective success.

Throughout history, many men and women have faced periodic demands to perform effectively at tasks demanding skill. Modern social life has increased the frequency with which such performances occur in front of an audience. These performance demands can be nerve-wracking, to the point that some public performance settings such as public speaking are among the leading causes of anxiety (Bruskin Associates, 1973). Not surprisingly, people want a sympathetic audience for their performances. People ask friends and relatives to attend their recitals, speeches, athletic contests, and even their oral examinations.

Aside from the emotional comfort of having a friendly face in the crowd, however, it is worth asking whether a supportive audience really does help performance—or, on the contrary, whether it makes it worse. True, it might be all the more satisfying to have one’s stellar performance witnessed by family and friends. Then again, it may be more painful to have friends and family see one fall flat on one’s face. A supportive audience could conceivably increase pressure, concern, and self-consciousness, which in principle could have a detrimental effect on performance. We conducted a series of laboratory studies designed to ascertain how skilled performance would be affected by whether the audience is supportive, hostile, or neutral.

That there are often benefits to supportive audiences is not in doubt. In sports, home teams generally do well. Even early work that began to suggest that home teams might “choke” (i.e., perform more poorly than usual) under championship pressure depicted these patterns as exceptions to the broad, general advantage that is enjoyed by home teams, accounting for a success (victory) rate of 60% in baseball and 70% in basketball (Baumeister & Steinhilber, 1984). In fact, as we worked on this article, the Winter Olympics were being held in Japan, and before the games ended the TV announcers observed that Japan had already won more medals in this Olympics than in its previous seven decades’ worth of Olympic competition (in other lands) combined. The current research is not intended to dispute the existence of home field advantages, which may have many causes, including greater familiarity with the playing field, a sense of ownership, freedom from the stress of travel (including disruption of the body’s internal time clock, known as “jet lag”), and possible improvements in effort or stamina or indeed any performance element other than skill. Our focus was specifically on the effect of supportive audiences on the execution of skills.

Previous work and theory provide ample basis for competing predictions about the effects of supportive audiences on skilled performance. Indeed, our research was sparked by inconsistent conclusions from archival findings. Baumeister and Steinhilber (1984) compiled the results of championship games in professional baseball and basketball and concluded that home teams tend to choke in the decisive game. On the basis of other evidence (Schwarz & Barsky, 1977; see also Pace & Carron, 1992), they suggested that the effects of locale are mainly attributable to the attitude of the audience, as opposed to mere familiarity with the physical environment. On the other hand, Schlenker, Phillips, Boniecki, and Schlenker (1995a) updated those statistics to include an additional decade of results. They found that the home choke pattern had ceased to reach significance and concluded that home teams enjoy an advantage in performance even in such contests. Baumeister (1995) proposed that the

Jennifer L. Butler and Roy F. Baumeister, Department of Psychology, Case Western Reserve University.

Jennifer L. Butler is now at the Department of Psychology, Wittenberg University.

This research was supported by National Institutes of Health Grant MH51482. This article is based on a doctoral dissertation completed by Jennifer L. Butler at Case Western Reserve University. We thank committee members Dianne Tice and Doug Detterman for their support and insightful comments during this project. We also thank Ellen Bratslavsky and Naimesha Cuddapah for acting as the audience in Experiment 1.

Correspondence concerning this article should be addressed to Roy F. Baumeister, Department of Psychology, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, Ohio 44106-7123. Electronic mail may be sent to rfb2@po.cwru.edu.

differential conclusions call into question the usefulness of archival sports data and called for laboratory experiments to ascertain what effects (if any) supportive versus hostile audiences may have.

Those contrary indications suggest that the effects of such audiences may not be simple or uniform. In this research, we therefore addressed the additional question of whether expectancies and goal level may moderate the effects of supportive audiences. Insofar as a supportive audience increases the anticipated importance and impact of either success or failure, it may well be that being supportive intensifies the audience's impact, so that performance improves when success is expected but deteriorates when failure is anticipated. We also sought to explore whether changes in performance strategy may mediate any of the effects of having a supportive audience.

Supportive Audiences

How performance is affected by the presence of other people has intrigued researchers for a century (e.g., Triplett, 1898). The effects of others encompass competition and social comparison, evaluative judgment, friendly encouragement, distraction, sense of responsibility, and simple arousal based on mere presence (R. S. Baron, 1986; Geen, 1989; Latané, Williams, & Harkins, 1979; Zajonc, 1965, 1980). In particular, self-presentational motivations make people want to make a favorable impression on whoever may be observing their performance (Baumeister, 1982; Jones & Pittman, 1982; Schlenker, 1980).

Not all audiences are the same, of course. The focus here is on the attitude of the audience toward the performer. Audiences with favorable attitudes can be labeled *supportive*, in that they want the performer to do well. They are likely to provide encouragement to the performer and to help the performer expect that success will be appreciated and rewarded. There are multiple possible bases for audience support. Audiences sometimes have an identity link or social bond with the performer, enabling them to bask in reflected glory (Cialdini et al., 1976). These social bonds and the empathic accuracy associated with such bonds may allow the supportive audience to share the performer's feelings during the task (Stinson & Ickes, 1992). Many observers experience gains in mood, self-esteem, and even in their own perceived competence and performance efficacy after watching successful performances by their favorites (Hirt, Zillman, Erickson, & Kennedy, 1992). Other audiences may have a more immediate and tangible interest, such as if they have bet on the performer to do well or if the performer is fighting to defend his or her home against hostile invaders. In any case, it is clear that observers often have strong investments in how the performers do.

Neutral audiences, in contrast, have little or no stake in the outcome and may not care how well the performer does, although they may be curious or entertained by the spectacle. Finally, hostile audiences may be defined as those who want the performer to do badly. Having any of these audiences may still be much different from performing alone.

Benefits of Supportive Audiences

There is ample reason to predict that supportive audiences will improve performance. Abundant evidence suggests that so-

cial support helps people cope with adversity and stress such as earthquakes, illnesses, or conflicts at work (R. S. Baron, Cutrona, Hicklin, & Russell, 1990; Cohen & Wills, 1985; Sarason, Sarason, & Pierce, 1988; Silver, Wortman, & Crofton, 1990; Taylor, Falke, Mazel, & Hilsberg, 1988).

One reason is that social support apparently provides a buffer against emotional distress, thereby enabling performance to be unencumbered by the harmful effects of the emotions (Cutrona, 1996). Emotional buffering has been linked to increases in perceived control and self-worth (Cohen & McKay, 1984; Krause & Borawski-Clark, 1994). Hence, a supportive audience may provide an emotional boost to performers that may help them withstand setbacks and adversity and continue to perform effectively.

The emotional advantage of a supportive audience is underscored by the apparent fact that people generally prefer to have a supportive audience. As already noted, anecdotal evidence provides abundant instances in which people ask friends and family to come watch them perform when the stakes are high. In sports, one of the most pervasive beliefs is that a supportive home team audience confers a valuable advantage to the performer (e.g., Courneya & Carron, 1991). The audience does in fact cheer preferentially for the home team, and home teams do tend to perform better than do visitors (Silva & Andrew, 1987; Varca, 1980). Baumeister and Steinhilber (1984) claimed that home teams choke only in the final, decisive contest, which is indicated by a drop in outcome from the normal pattern of home advantage.

A supportive audience could seemingly reduce the threat or distress associated with the evaluative structure of public performance. Performers may worry that doing badly will make a bad impression on strangers, but friends or family will presumably continue to feel positively toward the performer after failure. If supportive audiences do indeed boost feelings of efficacy and self-worth (Cohen & McKay, 1984), these factors may benefit performance, enabling the person to cease worrying about failure and concentrate on performing at an optimal level (e.g., Bandura, 1989; Feather, 1969). Indeed, supportive comments can influence task efficacy and improve performance (Gates & Rissland, 1923). Friends already know positive things about the performer, and so there is less pressure to gain the maximum positive exposure from each performance (Tice, Butler, Muraven, & Stillwell, 1995). Having a supportive audience may reduce the pressure to perform well.

Detrimental Effects of Supportive Audiences

On the other hand, there are several reasons to suspect that supportive audiences can impair performance. Brown and Garland (1971) hypothesized that supportive audiences such as friends can reduce the pressure of impression management, but their data contradicted that prediction. Indeed, they concluded that any expectation of future interaction (including that associated with friendship) increases the pressure to look good. Even the social support findings are not entirely favorable to supportive audiences: Supportive others may often offer help in a way that reduces rather than improves coping with stressful events. For example, Bolger, Foster, Vinokur, and Ng (1996) showed that although supportive others were responsive to the patient's

needs after breast cancer surgery, the presence of support did not improve adjustment or promote physical recovery from surgery. Alternately, support providers may misread the situation and choose ineffective means of support, thus making the situation more rather than less difficult (Coyne, Wortman, & Lehman, 1988; Cutrona, 1996).

A supportive audience will often hold high expectations for the favored performer, such as expecting an unusually good outcome (Tesser, Campbell, & McIntosh, 1989). High expectations from a supportive audience can make the situation seem more difficult to the performer (Wright, Tunstall, Williams, Goodwin, & Harmon-Jones, 1995). The burden of audience expectations can create pressure that will impair performance, especially if the performer's private expectations are not as favorable as the audience's (Baumeister, Hamilton, & Tice, 1985). Pressure to live up to the high expectations of a supportive audience elicits physiological responses among performers that indicate apprehension about one's ability to cope and succeed (Allen, Blascovich, Tomaka, & Kelsey, 1991).

High expectations or demands can result in unexpectedly low levels of performance if the performer cannot handle the pressure to perform well. Skilled performances are particularly vulnerable to decrements in performance because the execution of skills requires overlearned or automatic responses. When under pressure to perform well, people try to direct conscious attention to these processes to ensure a success; conscious attention undermines the automatic nature of the response and results in poorer performance (Baumeister, 1984; also see Kimble & Perlmuter, 1970). Self-awareness may thus be a crucial mediator of impaired performance on skill tasks (Lewis & Linder, 1997), and anything that causes an increase in self-awareness may cause people to choke.

There is ample reason to suggest that supportive audiences may intensify self-focus among performers. Supportive audiences probably attend more closely than other audiences to the performer (Tesser & Campbell, 1982; Tesser et al., 1989), and so the performer may feel closely scrutinized. A nonsupportive audience may be less attentive, so that a visiting team or unfamiliar performer may feel relatively ignored by the audience. Hirt et al. (1992) have argued that the identity of the performer and audience are closely linked, so that a success or a failure by the performer reflects directly on the audience. Supportive audiences may increase the salience of self-presentational motives and thus increase the level of self-focused attention (cf. Schlenker & Leary, 1982). Baumeister and Steinhilber (1984) suggested that the increase in self-focused attention may explain why the home field advantage does not exist in critical playoff games, although Schlenker et al. (1995a) challenged that interpretation.

Supportive audiences could also elicit a change in the style of performance that could be detrimental to performance. If performers feel increased pressure because of the great importance they attach to the supportive audience, performers might respond by reducing speed in the hopes of increasing accuracy. The desire for perfection could well lead to an effort to avoid all mistakes, and most people would probably assume that reducing speed is the best way to avoid mistakes. If reduced speed fails to increase accuracy substantially, however, the net effect could be poorer performance. We included tasks characterized by ap-

parent speed-accuracy trade-offs in our research to examine just this possibility.

Indeed, the self-awareness and performance style theories make somewhat different predictions about possible changes in speed and accuracy. If performance deteriorates because increased self-awareness impairs skill, accuracy should decrease. On the other hand, if the pressure alters the performance style, any drop in performance might be attributable to changes in speed (which is more controllable than accuracy) rather than accuracy.

The Present Research

Our research was designed to investigate the competing predictions about how supportive audiences would affect skilled performance. In each of the following studies, some participants performed a skill-based task in front of a supportive audience. Others performed the same task in front of a neutral audience or, in some cases, a hostile audience or no audience. Audience support was operationalized in several different ways. Experiment 1 relied on having each participant bring along a friend. Experiments 2 and 3 eliminated any confounding impact of prior acquaintanceship by composing the supportive audience of a stranger who stood to benefit financially if the performer succeeded. Our favored prediction was that the supportive audience would impair performance, particularly on skilled tasks done in the context of difficult, challenging goals. As we have said, however, there is sufficient basis to make the contrary prediction that people would perform best in front of the supportive audience.

In our research we also asked several other questions. We have noted that performers generally seem to prefer supportive audiences even though it is not entirely clear that such audiences improve performance. Hence, we wanted to determine whether people would actually enjoy the emotional or other benefits arising from the presence of a supportive audience. If these affective benefits were linked to good performance, it would be reasonable to assume that there is some link between subjective feelings or preferences and performance quality. On the other hand, if people performed badly but still felt better in front of the supportive audience, one would suspect that the emotions are irrelevant and that other factors (such as increased self-focus) might be the culprit.

Another question concerned the possibility that supportive audiences would elicit cautious, self-protective responses. Many performances contain some element of risk, and willingness to take such risks may affect the outcome. Isen, Nygren, and Ashby (1988) found that good moods make people risk averse (see also K. P. Leith & Baumeister, 1996), and if supportive audiences generate good moods, performers may become cautious. If the supportive audience engenders self-presentational concerns, participants are likely to use caution (Bond, 1982). Meanwhile, many performances involve some trade-off between speed and accuracy, and there are signs that performers do not accurately appreciate the nature of these trade-offs (e.g., Heckhausen & Strang, 1988). A cautious performer might therefore reduce speed; unless this resulted in a corresponding increase in accuracy, total performance could be impaired.

A final issue was the role of goal level and the corresponding

expectancies. There is certainly evidence that private expectancies of success are beneficial to performance, whereas expecting failure may reduce motivation and impair performance (e.g., Atkinson, 1957; Elliot & Harackiewicz, 1996; Feather, 1969). Then again, although performers' expectancies may benefit performance, audiences' expectations may impair it (Baumeister et al., 1985). *Social facilitation*, which is understood as the effects of audiences or other people on performance, may well depend on subjective expectancies and the anticipated difficulty of the task (see especially Bond, 1982). Thus, there should be an interaction between audience support and difficulty level. Although Experiments 1 and 2 focused on challenging tasks with fairly demanding standards, Experiment 3 explicitly varied the difficulty of the goal to see whether the effect of audience support would depend on whether success was easy or difficult. It may be that when performers expect success, the success expectancies of a supportive audience are beneficial, whereas if performers are unsure of success or expect failure, the additional demands of audience expectations lead to performance impairments in the presence of a supportive audience.

Experiment 1

The first experiment provided an initial test of the competing hypotheses about how supportive audiences would affect task performance. Because friends are the most common sources of social support in everyday life (Wheeler & Nezlek, 1977), we compared the effects of supportive friends and neutral strangers. Participants had to perform a stressful mental arithmetic task while being observed by one or the other audience. We specifically set up the situation to be relatively difficult, so that success expectancies would be low, because these seemed the ones most likely to produce a detrimental effect of audience support.

Method

Participants. Participants were 21 students in introductory psychology who signed up in connection with a course requirement. Each student was asked to bring along a close same-sex friend. Although the contacted participant and the friend arrived together, they were seated in separate rooms and did not interact with each other during the course of the experiment. This independent participation furnished 42 participants. Two failed to complete the procedure, resulting in a final sample of 40 (18 men and 22 women).

Procedure. Each participant was seated at a table facing a one-way mirror. An intercom was on the table. The experimenter explained that the task involved mental arithmetic. She said that this task was an important indicator of general intelligence. (This was done to make the task highly relevant to all participants, insofar as students wish to be intelligent.) The task required the participant to count backward out loud by 13s, starting from 1,470. Most participants expected this task to be difficult, and indeed previous researchers have used this task as a measure of stressful performance (e.g., Allen et al., 1991; Kamarck, Manuck, & Jennings, 1990). The experimenter exhorted the participant to count as quickly and as accurately as possible for the full duration of the 2-min trial. Participants were told that their goal was to say as many correct numbers as possible. The experimenter also explained that the participant should always subtract 13 from the last number he or she said aloud. This way, each error counted only once, as opposed to penalizing the participant repeatedly for a single mistake.

At this point the experimenter pointed to the one-way mirror and

intercom. She said that the mental arithmetic task would be observed via the mirror and intercom. She explained that the separation (necessitating the mirror and intercom) was useful to prevent any interference by the observer in the counting performance, such as if the observer might make a comment or facial reaction.

Half the participants were told that the observer would be the friend who had accompanied them to the experiment (the friend condition). The others were told that they would be observed by a stranger, and the experimenter mentioned a fictional stranger's name (the stranger condition). An experimental confederate actually served as the observer for both conditions. Participants were told that the observer would record the performance and would be responsible for sounding one signal to begin and another signal to end the mental arithmetic task.

The experimenter then answered any questions. The confederate signaled the participant to begin, and the performance was recorded. Afterward, participants answered questions about the degree of evaluation anxiety and support they had experienced on the task. Following this, they were debriefed, thanked for their participation, and dismissed.

Results and Discussion

Manipulation check. Each participant was asked to identify the observer. All responded consistently with what they had been told, naming either the friend or the stranger, in accordance with the condition assignment. Although the audience was in fact invisible and neutral and provided no social support or other input, there was a marginal tendency for the participants to rate the audience as being more supportive in the friend condition than in the stranger condition, $t(38) = 1.95, p = .06, d = 0.63$, on the postexperimental questionnaire.

We treated the individual participant as the unit of analysis rather than the pair of friends. In part, this was necessary because each individual had been independently randomly assigned to conditions, so that in most cases the two friends in each pair ended up in different conditions. Treating friends as independent individuals seemed further justified by the lack of any significant correlation between their performances. There was a nonsignificant positive correlation between pairs of friends in the total number of subtractions ($r = .20$) and a nonsignificant negative correlation between pairs of friends in the number of errors ($r = -.16$).

Performance. The main dependent variable was the quality of performance on the mental arithmetic task. The results indicate that the supportive audience impaired performance. As Table 1 shows, people made significantly fewer correct subtractions when (supposedly) performing in front of a friend than a stranger, $t(38) = 2.05, p < .05, d = 0.67$. On this task, then, the presence of a friend in the audience had a detrimental effect on the quality of performance.

Further evidence supported the secondary hypothesis that supportive audiences cause performers to become more cautious. We treated the task as a speed-accuracy trade-off and conducted separate analyses on the total numbers spoken and total errors. As Table 1 indicates, people performed significantly slower in front of the friend than in front of the stranger, $t(38) = 2.46, p < .05, d = 0.68$. The rate of errors per subtraction was almost identical in the two conditions ($t < 1, ns$), suggesting that accuracy was unaffected. Despite the greater number of subtractions made by participants in the stranger condition, they did not make significantly more total errors ($t < 1$).

These results suggest that performers reduced speed without

Table 1
Performance With Supportive Friends and Neutral Strangers
in Experiment 1

Performance measure	Type of audience	
	Friend	Stranger
Correct subtractions		
<i>M</i>	17.2	23.0
<i>SD</i>	8.3	9.2
Number of subtractions		
<i>M</i>	18.9	25.8
<i>SD</i>	7.5	9.2
Number of errors		
<i>M</i>	1.7	2.8
<i>SD</i>	1.7	2.1

increasing accuracy when they were performing in front of a supportive audience. Reducing speed to increase accuracy is, of course, a standard way of achieving a cautious performance. Unfortunately, in this case, the caution was futile because the slower speed failed to bring any increase in accuracy.

Subjective experience. Answers to postexperimental questions suggested that performers were largely unaware of the decrements in performance caused by the supportive audience. Participants reported that the supportive audience was less distracting, $t(38) = 3.17, p < .01, d = 1.03$, and marginally less stressful than the neutral audience, $t(38) = 1.94, p = .06, d = 0.63$. In other words, people seemed to prefer the supportive audience despite the performance impairments it caused. Furthermore, the performance effects of the supportive audience were not attributable to perceived evaluation pressures. Participants' ratings of feelings of being evaluated were also nearly identical in the two conditions ($t < 1, ns$).

Experiment 2

The results of Experiment 1 thus provide preliminary evidence that supportive audiences can impair performance on a difficult, skill-based task. There was also evidence that the mechanism had to do with adopting a cautious performance style that backfired and impaired performance, reducing speed without increasing accuracy. Still, the evidence about the mediating process was less than clear. Friends differ from strangers in many ways, including knowledge about abilities, desire to witness one's success, and expectations based on previous interactions.

In the second experiment, we therefore manipulated audience support situationally. Specifically, all observers were strangers. In the supportive audience condition, performers were told that both they and the audience would receive a cash prize if the performance was a success (based on surpassing a criterion). In the neutral audience condition, only the performer would receive a cash prize for a success, so the performer would assume that the observer would have little reason to care whether the performance turned out well. We predicted that, consistent with the findings of Experiment 1, performance would be poorer in front of a supportive audience than in front of a neutral audience.

Several other changes were made. To increase generality, we used a different task for Experiment 2: a video game, which furnishes a good measure of skilled performance, insofar as video games require considerable skill but are not affected much by effort (see Baumeister, Hutton, & Cairns, 1990). Also, given our interest in whether task decrements under pressure would be mediated by self-focused attention, we included a postexperimental measure of state self-focus. Participants were asked to write down three strategies they followed in their performance, and these open-ended responses were coded for self-references in the form of first-person pronouns, which furnish a reasonable measure of self-awareness (Davis & Brock, 1975). If supportive audiences do indeed impair performance by causing people to choke as a result of increased self-awareness, performers should make more self-referencing statements in the supportive audience than in the neutral audience condition.

Method

Participants. Forty-six undergraduates were contacted to participate in the study in return for course credit. They were scheduled in same-sex pairs, and the experimenter verified that they were strangers. Out of each pair, one participant was assigned the role of performer and the other was assigned to be the observer. Performance data were collected only from performers. The final sample consisted of 23 performers (9 men and 14 women) and 23 same-sex observers.

Apparatus. The experimental task consisted of an Atari computer system video game (Sky Jinks). It has been used in previous research as a measure of skilled performance (e.g., Baumeister, Heatherton, & Tice, 1993; Butler & Baumeister, 1997). It has several features to recommend it as an experimental task. The game is essentially the same every time, unlike some games that change in random ways. One's score is largely a linear function of performance, unlike many games that have elaborate bonuses or that become briefly easier when performance moves to a new level. It is also unfamiliar to all participants, being old-fashioned and not having been one of the most popular games even when it was originally released.

The object of the game is to steer an airplane with a joystick through an obstacle course as fast as possible. The course is marked by a series of pylons, and the performer must steer to the right of all red pylons and to the left of all blue ones. The pylons alternate in color, requiring the performer to zigzag, and speed must be moderated to maintain control and avoid crashing or missing pylons. There are other obstacles (trees and hot air balloons) that are near but not in the optimal flight path, and hitting any of them or any of the pylons causes a delay. The best score is achieved by accelerating rapidly through the course without missing any pylons or crashing into any obstacles.

Procedure. The experimenter greeted each pair and randomly assigned them to the roles of performer and observer. They were seated in separate rooms for the initial briefing.

The performer was told that the experiment involved learning to play a video game. The experimenter verified that the participant was unfamiliar with the game (as all were) and then explained the game, including giving tips on how to perform well. The performer was then given 20 min to practice the game. On the basis of previous work, 20 min seems adequate for most people to become familiar with the game and for the learning curve to flatten out on a plateau. The experimenter left the performer alone for the 20-min practice session.

During the practice period, the experimenter explained to the observer the rudiments of the video game. The experimenter said that the observer's task would be to evaluate and record a single trial by the performer. In both conditions, the experimenter instructed the observer to act normally and to feel free to say anything that might help the performer to

focus on the game and succeed at the task. The observer was then left alone to wait out the rest of the practice period.

After 20 min, the experimenter returned to the performer's room. The experimenter explained that there would now be 10 trials on which the performer would demonstrate the level of skill that had been acquired during the practice period. The experimenter instructed the performer to concentrate on scoring as well as possible on the 10 trials and to record the scores on a clipboard. The experimenter then moved behind a screen, so that the performer was alone during the 10 performance trials (to differentiate them from the later performance in front of an audience). Thus, although the experimenter remained in the room, she was not directly observing the performer at this time. Pilot testing and postexperimental responses confirmed that participants did not feel that they were being observed and were not highly sensitive to the experimenter's presence during these trials. The 10 trials furnished a baseline level of performance.

The experimenter then escorted the observer into the room with the performer and gave the final instructions in the presence of both. The experimenter said that during the preceding 10 trials, the performer had actually and unknowingly been competing against a criterion and that each successful performance (i.e., better than the criterion) earned a reward of \$1. The experimenter gave the impression that the criterion value was set in advance and was the same for all participants. Actually, however, the criterion was set between the third and fourth best score from the performer's 10 baseline trials. This difficulty level was chosen so that the goal was difficult for participants, but with a superior performance they could still reach the criterion and succeed on the task. The experimenter then read the 10 scores aloud and announced that the performer had surpassed the criterion on 3 of them, which amounted to a prize of \$3.

To keep the prize, however, the experimenter explained that the performer would have to compete against the criterion one more time. The same criterion would be used, and, if the performer surpassed it, he or she could keep the \$3. Otherwise, it would be forfeit. The experimenter explained that this way, as in many performances outside the laboratory, there was a tangible incentive to the performer to do well.

The experimenter went on to say that in normal life, performances are often observed by others. The next instructions differed depending on the condition. In the supportive audience condition, the experimenter said that real-life audiences often have a vested interest in the performance they are observing and that to create that situation in the laboratory, the researchers would pay both the performer and the observer in the event of a successful performance (i.e., surpassing the criterion). In the neutral audience condition, no reward for the observer was mentioned: Only the performer would benefit from a success. In both conditions, the experimenter then instructed the observer to watch carefully, to evaluate the performance, and to record the final score.

Immediately after giving the instructions, both participants completed a brief questionnaire containing measures of cognitive appraisal, including their perceptions of how stressful the task was and their ability to cope with task demands. Performers were also asked to list three specific strategies that they intended to use to reach the criterion. These strategies would be used to measure self-awareness (cf. Davis & Brock, 1975). Performers then played the video game for the final time. A manipulation check was distributed. Participants were debriefed, paid any money they had won, and dismissed.

Results

Performance. From the performers' point of view, the most important outcome measure was whether they passed the criterion (and won the money) on the final trial. Success rates were significantly higher in the neutral audience condition (8 of 11 won) than in the supportive audience condition (3 of 12), $\chi^2(1, N = 23) = 5.24, p < .05$.

The score on the final performance trial was submitted to a one-way analysis of covariance (ANCOVA) with the criterion as a covariate because it furnished a rough measure of skill level. Additionally, the criterion was of particular interest because it formed the participant's goal and was the focus of the payoff contingencies. The analysis revealed that performance was poorer when the audience was supportive than when the audience was neutral, $F(1, 21) = 4.17, p < .05, d = 0.87$. These results are presented in Table 2. Without the covariate, the analysis of variance (ANOVA) showed that times were likewise significantly slower with the supportive than the neutral audience, $F(1, 22) = 4.89, p < .05, d = 0.94$.

The final score was based on a speed-accuracy trade-off, in that going faster increased the risk of crashing and each crash slowed the plane down by 1 s. The 1-s penalty for crashing could be corrected for by keeping track of the number of crashes (which we did). This made it possible to consider speed and accuracy separately. As in Experiment 1, the supportive audience made people perform more slowly ($M = 49.7$ s) than performers who had a neutral audience ($M = 41.9$), possibly in a cautious attempt to avoid mistakes; although this result failed to reach significance given the high variance, the effect size was large enough to warrant attention, $t(21) = 1.79, p = .08, d = 0.78$. The slower speed again failed to improve accuracy, however. Indeed, we found that performers made more crashes in front of the supportive ($M = 4.0$) than the neutral audience ($M = 1.8$), $t(21) = 2.21, p < .05, d = 0.96$. Thus, performance decrements were found on both speed and accuracy.

Self-awareness. The level of self-awareness was assessed by counting self-referent statements made by the performers on their open-ended answers to the question about performance strategies (furnished just before the final performance trial). More precisely, the number of first-person pronouns was counted as a measure of state self-awareness. There were two reasons for our interest in state self-focus. The first was that on pressured tasks, self-awareness may be linked with poor performance (e.g., Baumeister, 1984; Lewis & Linder, 1997). This pattern was confirmed by our data. Higher state self-focus as indicated

Table 2
Score on the Final Trial in Experiment 2

Performance measure	Type of audience	
	Supportive	Neutral
Score on final trial (seconds)		
<i>M</i>	53.83	43.70
<i>SD</i>	13.76	6.66
Criterion level (seconds)		
<i>M</i>	48.26	47.53
<i>SD</i>	7.78	5.42
Number of crashes, final trial		
<i>M</i>	4.08	1.82
<i>SD</i>	3.06	1.47
Speed on course, final trial (seconds)		
<i>M</i>	49.75	41.88
<i>SD</i>	13.50	5.57

Note. The goal of the game was to obtain the fastest time (score) possible. Low numbers indicate better performance.

by the pronoun count was correlated with slower (poorer) performance on the final trial ($r = .61, p < .01$).

The second reason was to examine whether supportive audiences would contribute to higher levels of self-focus. Given the link between self-focus and poor performance, an increase in self-awareness could explain why performance was impaired in front of the supportive audience. There was marginal support for this view: Participants used more first-person pronouns in the supportive audience condition ($M = 1.5$) than in the neutral audience condition ($M = 0.06$), $t(21) = 1.79, p = .08, d = 0.78$.

Because observers were allowed to speak, we wondered whether the comments they made had any impact on self-awareness levels of performers. There were no differences between the supportive and neutral audiences in either number or content of comments (most observers said nothing). This suggests that any heightening of self-focus among performers was a response to the situation rather than a direct result of the audience's behavior.

Subjective experience. The postexperimental questionnaire asked participants to rate the stressful nature of the task (as they perceived it). Surprisingly, participants in the supportive audience condition perceived the situation as being far less stressful ($M = 2.6$ on a scale from 1 to 7) than participants in the neutral audience condition ($M = 4.7$), $t(21) = 3.21, p < .01, d = 1.40$. Thus, the supportive audience apparently reduced stress even though it consisted of a stranger with a yoked reward contingency and even though objectively the supportive audience led to poorer performance.

Participants also rated their perceived ability to cope with the task. There was no significant difference between the supportive audience ($M = 5.1$) and the neutral audience ($M = 5.7$) on this measure ($t < 1$).

Discussion

The results of Experiment 2 were largely consistent with those of Experiment 1, despite the substantial changes in measures and procedure. The supportive audience led to poorer performance. Futile caution may have mediated the response, in that performers slowed down in front of the supportive audience but failed to improve accuracy. Indeed, they were significantly less accurate too.

The incentives for performing well on the final trial spurred performance with a neutral audience, but they did not improve performance with a supportive audience. Indeed, it is noteworthy that the criterion was set for each participant to create only a 30% success expectancy (based on what the performer had done on the preceding 10 trials), but in the neutral audience condition 73% of the performers met or surpassed it. One explanation was that the acquisition of skill had not yet reached an asymptote by the end of the experiment, so that people were still improving. Another is that the situational structure did contain some element that actually elicited an improvement on that single performance compared with what the performer would have done otherwise. In any case, we acknowledge that what we are characterizing as impaired performance refers to impairments in relative terms rather than absolute ones.

There was some evidence that a supportive audience made

performers more self-focused than a neutral audience. The size of the effect was large, but it fell short of significance. Given the brevity and nonstandard nature of the measure, as well as the difficulty of measuring state self-awareness, the results could be regarded as providing tentative support for the view that self-awareness is a factor. Lewis and Linder (1997) proposed that sharp increases in self-awareness may be the cause of unexpected performance decrements (see also Baumeister, 1984). In the present situation, it seems plausible that supportive audiences impair performance by causing people to focus attention on themselves.

Experiment 3

The results of Experiments 1 and 2 converge in indicating that skilled performance can be impaired by having a supportive audience. Still, two crucial questions about those results remain, and they could raise limitations or qualifications on the conclusion. Experiment 3 was designed to address both.

The first concerns goal levels and expectations. It is plausible that the tasks used thus far in the investigation were difficult and stressful enough that participants expected to fail. For example, in Experiment 2 the criterion for success was set high, such that the performer had surpassed it on only 3 of the 10 previous performance trials. Rational analysis would predict that most performers should have expected to fail on the final trial (i.e., they should perceive a 70% likelihood of failure), although the prize on the final trial should have provided an incentive to perform at optimal levels on the final trial. It is possible that the detrimental effect of the supportive audience observed in Experiments 1 and 2 could be specific to situations in which the goals are challenging and private expectations are low. A supportive audience may be beneficial when the goals are reachable and private expectations are high.

Several findings from previous work suggest that supportive audiences may be especially troublesome and detrimental to performers who expect failure. Negative thoughts about the performance (or even thinking about the possibility of failure) tend to increase the likelihood of choking under pressure (L. M. Leith, 1988; Van Raalte et al., 1995). A supportive audience may further increase the likelihood of choking. Although Schlenker et al. (1995a) did not find an overall effect of choking in the presence of a supportive audience, their research did show that home teams made the most fielding errors when they had fallen behind in the crucial championship game. Likewise, if home teams fall behind in a championship game, they experience more difficulty regaining the lead; visiting teams are better able to regain the lead (Heaton & Sigall, 1989). It is possible that falling behind in the score could generate unfavorable expectancies (i.e., of losing), which are particularly troublesome in the presence of a supportive audience. Baumeister et al. (1985) compared both audience and performer expectancies for success and failure. They found performance to be poorest precisely when audience expectations were high but performers' private internal expectations were low.

Research on social facilitation has likewise suggested that expectancies play a role in performance. As initially conceptualized (Zajonc, 1965, 1980), social facilitation occurs because having an audience accentuates the dominant response. The

complexity of the task is thus the crucial moderating factor in predicting performance, although other factors such as level of skill and experience of the performer could also play a role. For simple tasks, the dominant response is presumably success, so audiences should improve performance on such tasks. For complex and difficult tasks, the dominant response is presumably failure; therefore, having an audience should increase the likelihood of failure on such tasks.

Although Zajonc (1965, 1980) concluded that the properties of the task and the skill and experience of the performer were the most important, Bond (1982) argued for a slightly different view of social facilitation. Bond found that audiences improved performance even on difficult tasks if the difficult tasks were embedded among easy ones; likewise, audiences impaired performance on easy tasks when they were embedded among difficult ones. This suggests that the performer's expectancy, rather than ability level or the objective nature of the task, may be crucial in determining the impact of an audience (Sanna, 1992). If the performer succeeded at a series of tasks (because they were easy), he or she might then expect to continue succeeding and might therefore do well even on a difficult task.

Therefore, we designed Experiment 3 to include two different goal levels. One condition was similar to Experiment 2, in that the criterion for success was set such that most of the performer's scores on the baseline trials would have been failures. In the other condition we used a relatively easy criterion for success, so that most of the performers' baseline scores would have been successes. We predicted that there would be an interaction between expectancy and audience: The detrimental effect of the supportive audience would be replicated with the unfavorable expectancy (difficult task) but would disappear or possibly even be reversed when the performer expected success.

The other question addressed in Experiment 3 concerned the possible effect of a hostile or adversarial audience. In Experiments 1 and 2 we compared supportive and neutral audiences. It is conceivable that a supportive audience is simply a special case of some broader category, such as audiences who care (or are presumed to care) about the outcome, audiences who are attentive, or audiences who will have emotional responses to the performance. If an adversarial audience were to produce the same results as a supportive audience, this would contradict the seeming implication that supportiveness per se is harmful to performance. In contrast, if adversarial audiences were found to have a neutral effect or to facilitate performance, such a finding would strengthen the conclusion that it is specifically the supportive attitude that makes an audience detrimental to performance.

An additional area of interest was the subjective experience of the performer. Although supportive audiences were associated with performance impairments in Studies 1 and 2, performers reported feeling less distraction and stress when the audience was supportive than when the audience was neutral. It is possible that supportive audiences provide an effective emotional buffer that allows performers to feel positive despite performing poorly. Such an emotional buffer may even function to delude the performer into thinking that he or she has succeeded on the task; positive emotions may be incorrectly interpreted as evidence of success on the task.

Method

Participants. Ninety-three undergraduates (52 men and 41 women) participated to satisfy course requirements. Each participant was paired with a same-sex confederate who served as the observer.

Apparatus and measures. The task consisted of playing the same Atari system game as in Experiment 2. The goal was to steer an airplane through an obstacle course as quickly as possible without crashing or missing pylons.

To assess the possibility that individual differences in self-esteem or interpersonal orientation could moderate the results, we administered several trait scales. Each participant filled out Fleming and Courtney's (1984) version of Janis and Field's (1959) self-esteem measure, the Interpersonal Orientation Scale (Hill, 1987), and the Rejection Sensitivity Scale (Downey & Feldman, 1996). Because these measures failed to yield useful information or significant results, we do not discuss them further.

The cognitive appraisal questions used in Experiment 2 were also used in Experiment 3 to assess each performer's expectations about the task. In addition, the performer's emotional state just before the final (crucial) trial was assessed with a measure consisting of a series of line-drawn faces on a 7-point scale, depicting a range of positive to negative moods. Finally, a modification of the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975) was used to assess state self-focus. Participants were instructed to respond to the items according to how they were feeling during the final trial. Thus, the scale was administered as a state rather than a trait measure.

Procedure. Participants were greeted by the experimenter and assigned to fill out the self-esteem, interpersonal orientation, and rejection sensitivity measures. After this, they moved to the table with the video game. The next part of the procedure was identical to that of Experiment 2. The experimenter verified that the participant was not familiar with the game (none were), gave instructions, and then allowed the participant 20 min to practice the game. Participants were ostensibly alone during the 10 baseline trials.

After the baseline trials, the experimenter explained that there would be one final trial. At this point, the procedures for the four audience conditions diverged. Participants in the supportive, neutral, and adversarial conditions were told that an observer would be present to watch the final trial. The experimenter then brought the observer into the room. The confederate observer was seated behind the participant and to one side so that he or she would be able to watch the final trial without visually distracting the participant. Both the confederate and the participant heard the instructions for the final trial. Participants in the no-audience (control) condition were not told anything about an observer or audience, and none was brought into the room.

The experimenter explained that the participant could win a \$5 prize for surpassing a criterion on the final trial. The experimenter tried to give the impression that the criterion was preset and constant for all participants, but in fact it was individually tailored to one of two levels of difficulty based on the participant's baseline performances. For participants assigned to the easy criterion condition, the experimenter named a criterion that was slightly better than the participant's 9th best performance (so that the participant had surpassed the criterion on 8 of the 10 baseline trials). For participants in the difficult criterion condition, the criterion was set slightly worse than the participant's second best performance (so the participant had surpassed the criterion on only 2 of the 10 baseline trials). Assuming that the baseline trials were an accurate measure of the participant's ability on the task, these criteria should therefore have created subjective probabilities of success of 80% and 20%, respectively. To increase the salience of these expectancies, the experimenter read the participant's times on the baseline trials aloud.

The experimenter made sure that the participant understood that surpassing the criterion would entail winning a \$5 prize, whereas failing to surpass the criterion would mean getting nothing. For all participants,

the experimenter made it clear that the goal was to score as well as possible so as to beat the criterion. She said, "You should focus on doing as well as you can on this last trial. No matter what you think your chances of success are, you should consider it your job on this trial to go faster than the criterion."

The experimenter then explained the reward contingencies of the audience, if relevant. The supportive and neutral audience conditions were the same as those in Experiment 2. In the supportive audience condition, the observer would win \$5 just like the participant if the participant passed the criterion; in the neutral audience condition the observer had no financial stake in the participant's performance. In the adversarial audience condition, the experimenter explained that either the participant or the observer would win \$5: If the participant beat the criterion, the participant would win the money, but otherwise the observer would get it. In the no-audience condition, there was no mention of any prize for anyone other than the participant.

Participants then completed the cognitive appraisal questions and the emotional state measure. The experimenter then covered the location on the monitor screen where time was displayed, so that participants could not immediately tell whether they were passing the criterion. As the experimenter left the room and the participant prepared to start the final trial, the observer made a comment to underscore his or her own financial contingency (if applicable). That is, in the supportive audience condition, the observer said, "Let's go, you can do it, let's win the money." In the adversarial audience condition, the observer said, "No way, c'mon, crash, you'll never make it." No such comments were made in the neutral or no-audience conditions.

Immediately after the final trial, the experimenter returned and administered the state self-focus measure, instructing the participant to fill it out pertaining specifically to how he or she felt during the performance trial. The participant also completed questions about how he or she perceived the final trial. The participant was then debriefed, was paid whatever money he or she had won, and was dismissed.

Results

Manipulation check. On the item asking participants how well they expected to do against the criterion, there was a significant main effect for criterion difficulty, $F(1, 82) = 3.99, p < .05, d = 0.44$. Participants had more confidence in doing well against the easy criterion ($M = 7.84$) than against the difficult criterion ($M = 6.49$). Although these findings confirm that the manipulation was successful, they do not depict it as overwhelming. Indeed, both means are fairly near the midpoint of the 13-point scale. The criteria were set at the 80th and 20th percentile of the performer's own recent scores, and this difference might have been expected to produce responses at opposite ends of the scale on this item. Hence, it may be that expectancies depend on more than the manipulation of criterion difficulty, although, as we noted, the effect of criterion difficulty was significant.

Participants were also asked to assess their perceptions of the audience on a series of items that were measured on a 7-point scale. The supportive observer was rated as being significantly more supportive ($M = 6.19$) than were neutral ($M = 2.50$) or adversarial ($M = 1.90$) audiences, $F(2, 63) = 48.01, p < .001, \eta = .78$. Adversarial audiences were rated as being significantly more hostile ($M = 4.43$) than either neutral ($M = 1.18$) or supportive ($M = 1.27$) audiences, $F(2, 63) = 34.88, p < .0001, \eta = .72$. Thus, both manipulations appeared to have been successful.

The hypotheses were based on an assumption that participants

would have learned the game and reached a plateau of skill before the performance trials. To confirm this, we compared the average score on the first 5 baseline trials against the average score on the last 5 trials. The difference did not reach significance ($t = 1$). This suggests that the learning curve for the video game had reached a fairly flat level and that scores on the money trial should be attributed to effects on performance rather than errors that might occur when learning the task.

Performance outcome. As in Experiment 2, the performance outcome was binary: Either the participant surpassed the criterion (which was set individually on the basis of baseline scores) and won money, or else the participant failed to do so. A log-linear analysis was performed on these outcomes, which are presented in Table 3. Not surprisingly, there was a main effect for criterion difficulty, $\chi^2(1, N = 93) = 37.73, p < .0001, d = 0.64$. More important, there was an interaction between criterion difficulty and audience support on the performance outcome, $\chi^2(10, N = 93) = 17.88, p < .05$.

The relationship between audience support and the performance outcome could also be assessed correlationally. For this analysis, we dropped the no-audience control group and treated the audience's attitude toward the performer as a continuum ranging from adversarial (0) to neutral (1) to supportive (2). We then computed a point-biserial correlation with performance outcome. In the difficult criterion condition, there was a significant relationship ($r = -.39, p < .01$), indicating that the more supportive the audience was, the poorer the performance outcome. In the easy criterion condition, the relationship was negligible ($r = -.05$). The difference between the two correlations approached significance ($z = 1.68, p = .09$), which essentially confirmed the interaction from the log-linear analysis.

Performance outcomes were further investigated using chi-square analyses to compare pairs of cells. Audience support made no difference in the easy criterion condition (i.e., all chi-squares were less than one). In the difficult criterion condition, however, significant differences emerged. Performers who had a supportive audience were significantly less likely to surpass the criterion than performers who had a neutral audience, $\chi^2(1,$

Table 3
Performance on the Final Trial in Experiment 3

Condition	Type of criterion	
	Easy	Difficult
Supportive audience		
Passed criterion	92%	0%
Margin from baseline	0.55 s	-1.75 s
Neutral audience		
Passed criterion	90%	25%
Margin from baseline	2.14 s	1.26 s
Adversarial audience		
Passed criterion	100%	45%
Margin from baseline	1.71 s	3.16 s
No audience		
Passed criterion	92%	58%
Margin from baseline	0.36 s	2.85 s

Note. Margin number indicates seconds faster than the individual participant's baseline average. Positive numbers signify improvement, and the negative number indicates impairment.

$N = 25$) = 3.89, $p < .05$, $d = 0.39$. They also fared worse than participants who had an adversarial audience, $\chi^2(1, N = 23) = 7.46$, $p < .05$, $d = 0.57$, and worse than no-audience controls, $\chi^2(1, N = 25) = 10.53$, $p < .005$, $d = 0.65$. The neutral, adversarial, and no-audience conditions did not differ significantly from each other.

Thus, the main thrust of the performance outcome results was that there was an interaction between criterion difficulty and audience support on performance. When the task was easy and performers expected to succeed, there was no clear effect of having a supportive audience. When the task was difficult and performers did not expect to succeed, supportive audiences impaired performance and made people less likely to reach their goal.

Performance against baseline ability. An alternate way of looking at the performance data is to compare the participant's final score against his or her baseline. This approach has the advantage of putting the easy and difficult criterion groups on equal footing; in the previous analysis strategy, we showed that people were more likely to pass an easy criterion because, by definition, easy criteria are easier to surpass than difficult ones. For this analysis, we computed each participant's average across the 10 baseline trials and used it as a covariate for the actual performance on the money trial. Using this strategy, each person's final score was compared with his or her own level of ability, as demonstrated on the baseline trials.

An ANCOVA using the baseline as a covariate yielded a significant main effect for audience support, $F(3, 85) = 3.60$, $p < .05$, $\eta = .36$, again indicating that participants in the supportive audience condition scored worse than all others. Pairwise comparisons confirmed that performance in the supportive audience condition was worse than performance in the neutral audience condition, $F(1, 85) = 4.21$, $p < .05$, $d = 0.43$; worse than in the adversarial audience condition, $F(1, 85) = 8.30$, $p < .01$, $d = 0.63$; and worse than the no-audience condition, $F(1, 85) = 3.05$, $p < .08$, $d = 0.38$. There was also a significant interaction between audience support and criterion difficulty, $F(3, 85) = 3.89$, $p < .05$, $\eta = .32$. The detrimental effects of audience support were apparently confined to the difficult criterion condition because difficult criterion participants in the supportive audience condition scored worse than participants in the neutral audience condition, $F(1, 85) = 3.52$, $p < .06$, $d = 0.41$; adversarial audience condition, $F(1, 85) = 11.15$, $p < .005$, $d = 0.72$; and no-audience condition, $F(1, 85) = 15.14$, $p < .001$, $d = 0.84$. When the goal was easy, audience support did not have any effect ($ps > .20$).

Similar results were obtained by conducting an ANOVA on change scores (which were computed by subtracting the baseline performance average from the money trial score): As shown in Table 3, there was a significant main effect for audience support, $F(3, 85) = 3.39$, $p < .05$, $\eta = .34$, and a significant interaction between audience support and criterion difficulty, $F(3, 85) = 3.41$, $p < .05$, $\eta = .34$. The performance decrements in the supportive audience condition were mainly found under the difficult criterion condition. Compared with the easy criterion condition, the more challenging difficult criterion seems to have brought about a tendency for performers to choke under pressure when they had a supportive audience. Tukey's honestly significant difference (HSD) tests confirmed that there were no

significant differences between conditions when the criterion was easy. When the criterion was difficult, HSD tests confirmed that performers in the supportive audience condition scored significantly worse than performers in any other audience condition ($ps < .05$). In contrast, participants who had an adversarial audience seemed to have risen to the challenge and actually performed better against the difficult criterion than against the easy one. Participants were able to score significantly better against the difficult criterion when the audience was adversarial than when the audience was neutral, $F(1, 85) = 4.99$, $p < .05$, $d = 0.48$.

The pattern of performance for the neutral and no-audience conditions provided an intriguing suggestion of social facilitation. Looking only at these two levels of audience, an ANOVA using the baseline average as a covariate revealed a significant interaction between audience support and criterion difficulty, $F(1, 42) = 7.24$, $p < .05$, $d = 0.83$. Planned comparisons revealed that when the criterion was difficult, participants scored better when there was no audience than when the audience was neutral, $F(1, 42) = 5.03$, $p < .05$, $d = 0.69$. Thus, when there was no audience, performers were able to respond to the challenge of a difficult criterion but did not exert themselves against an easy criterion. Indeed, participants in the no-audience condition performed significantly better when the criterion was difficult than when the criterion was easy, $F(1, 42) = 9.46$, $p < .01$, $d = 0.95$. When the criterion was easy, participants performed somewhat better when there was a neutral audience than when there was no audience, although the difference failed to reach significance, $F(1, 42) = 2.49$, $p < .13$, $d = 0.49$. These results replicate social facilitation effects with the perspective that expectancies, rather than task difficulty, are a critical factor.

Speed and accuracy. The results of Experiments 1 and 2 suggest that futile caution was partly responsible for the performance decrements. For Experiment 3, as in Experiment 2, we kept track of crashes as a measure of (in)accuracy, so that by adjusting final performance times for the penalties and crashes we were able to obtain relatively pure measures of speed. Table 4 shows these means.

An ANOVA on speed scores indicated main effects for both audience support, $F(3, 85) = 7.20$, $p < .001$, $\eta = .45$, and criterion difficulty, $F(1, 85) = 4.12$, $p < .05$, $d = 0.44$. On the final, crucial trial, performers used higher speeds when working against the difficult criterion ($M = 43.85$ s) than against the easy criterion ($M = 45.08$ s). Pairwise comparisons using Tukey's HSD test indicated that in the difficult criterion condition, the supportive audience elicited slower performances than either the adversarial audience ($p < .01$) or no-audience ($p < .01$) condition. No other differences were significant in the difficult criterion condition. In the easy criterion condition, meanwhile, the only significant difference was that supportive audiences elicited slower performance than adversarial audiences ($p < .01$). Apparently, then, the supportive audience caused people to reduce speed, possibly reflecting a cautious style of performance, whereas the hostile, adversarial audience elicited an increase in speed (suggesting a more risky, aggressive style).

There was also further support for social facilitation effects between the neutral and no-audience conditions. When there was no audience, participants worked more quickly against a

Table 4
Score on the Final Trial in Experiment 3

Variable	Type of criterion	
	Easy	Difficult
Score on final trial (seconds)		
Supportive audience	51.59	52.76
Neutral audience	49.18	50.22
Adversarial audience	49.53	47.83
No audience	50.27	49.02
Criterion level (seconds)		
Supportive audience	55.31	49.48
Neutral audience	52.28	48.78
Adversarial audience	54.55	47.74
No audience	52.95	49.28
Number of crashes, final trial		
Supportive audience	3.92	5.39
Neutral audience	2.50	4.00
Adversarial audience	5.80	3.46
No audience	4.00	6.08
Speed on course, final trial (seconds)		
Supportive audience	46.75	45.99
Neutral audience	44.88	44.47
Adversarial audience	43.13	42.74
No audience	45.09	41.94

Note. The goal of the game was to obtain the fastest time (score) possible. Low numbers indicate better performance.

difficult criterion than against an easy criterion, $F(1, 42) = 5.72, p < .05, d = 0.74$. Furthermore, when the criterion was easy, participants worked more quickly when the audience was neutral than when there was no audience, $F(1, 42) = 5.00, p < .05, d = 0.69$. When the criterion was difficult, there was a trend for participants to work more quickly with no audience than with a neutral audience, $F(1, 42) = 3.05, p = .08, d = 0.54$.

Accuracy, as measured by the number of crashes, showed a different pattern. There were no main effects. However, there was an interaction between audience support and criterion difficulty, $F(3, 85) = 2.81, p < .05, \eta = .30$. Performers who had an adversarial audience were able to be more accurate when the criterion was difficult than when the criterion was easy, as were participants in the no-audience control condition, whereas performers who had a supportive or neutral audience showed the opposite pattern of less accuracy (i.e., more crashes) when going against the difficult criterion.

Pairwise comparisons were done using Tukey's HSD test. The supportive audience conditions did not differ reliably from any other condition in terms of accuracy (crashes). In the difficult criterion condition, performers who had the adversarial audience crashed less than the no-audience control.

Thus, performers who had an adversarial audience managed to improve on both speed and accuracy when they competed against a difficult criterion. Performers with a supportive audience were slower in general than other performers but failed to gain accuracy from this slow speed.

Self-awareness. Scores on the state self-consciousness measure were correlated with performance change scores (i.e., money trial minus baseline average) across the entire sample

($r = -.26, p < .05$). This is consistent with the assumption that self-focus is detrimental to performance on skill tasks.

An ANOVA on self-focus scores yielded a main effect for audience support, $F(3, 89) = 4.04, p < .01, \eta = .36$. The main effect seemed to be attributable to elevated self-awareness in the supportive audience condition ($M = 22.39$) and decreased self-awareness in the adversarial audience condition ($M = 15.76$), compared with the neutral and no-audience conditions ($M_s = 18.33$ and 20.09 , respectively).

The ANOVA also yielded an interaction between audience support and criterion difficulty, $F(3, 89) = 3.16, p < .05, \eta = .31$. This interaction was not predicted and is not readily interpretable. The supportive, adversarial, and no-audience conditions produced drops in self-focus in the difficult (as opposed to easy) criterion conditions, whereas the neutral audience condition showed an increase from the easy to difficult criterion conditions. The lowest level of self-focus among the eight cells ($M = 14.09$) was recorded by participants with an adversarial audience in the difficult criterion condition. Although we are reluctant to draw strong conclusions from the interaction, it does seem that performers were successfully able to screen out the debilitating, self-focusing effects of the audience and focus in on the challenging task when their audience was adversarial.

The ultimate question was whether changes in self-awareness would mediate the performance outcomes. A definitive answer is difficult to provide, partly because measurements of state self-awareness are unstable and subject to considerable noise. Even though we obtained significant differences on the measure, the data might not be clear enough for mediation analyses. Still, the fact that the self-awareness means failed to resemble all the performance means casts doubt on a simple mediation hypothesis (R. M. Baron & Kenny, 1986). Our additional attempts to investigate mediation using the covariation analysis strategy proposed by R. M. Baron and Kenny failed to establish self-awareness (as revealed by our measure) as a mediator of performance. The most appropriate conclusion is that self-awareness was affected by our procedures and did have some relationship to final performance but cannot be identified as a direct mediator.

Mood. An ANOVA on the brief measure of emotional state yielded a main effect for audience support, $F(3, 85) = 4.74, p < .01, \eta = .38$. Participants reported feeling the most positive when the audience was supportive ($M = 5.31$) and the least positive when the audience was adversarial ($M = 3.91$). Neither the effect of criterion difficulty nor the interaction between the two variables was significant. Ratings of arousal failed to yield any significant differences.

Stress. An ANOVA revealed a main effect for audience support for participants' perceptions of the stressful nature of the situation, $F(3, 85) = 5.58, p < .01, \eta = .41$. They rated the situation as being the least stressful in the supportive audience condition ($M = 2.81$) and the most stressful in the adversarial audience condition ($M = 4.42$). There was also a main effect for criterion difficulty, $F(1, 85) = 3.79, p < .05, d = 0.42$, as performers rated the situation as being significantly more stressful when the criterion was difficult ($M = 3.79$) than when the criterion was easy ($M = 3.24$). The interaction between the two variables was not significant ($F < 1$).

Perceived performance. Immediately after the money trial, participants were asked to estimate their scores (while the screen

display was still concealed from them). These guesses were reasonably accurate, in that participants' estimates were correlated with the money won on the final trial ($r = .25, p < .05$). To determine the accuracy of the estimate, we calculated the difference between estimated and actual performance for each participant. An ANOVA on these difference scores yielded a significant main effect for audience support, $F(3, 85) = 3.86, p < .05, \eta = .35$. In the neutral ($M = 1.92$), adversarial ($M = 1.40$), and no-audience ($M = 1.56$) conditions, participants estimated their performances as being slightly worse (i.e., slower) than they actually were, but, in the supportive audience condition ($M = -0.60$), they estimated their performance to be better than it actually was. There was also a significant interaction between audience support and criterion difficulty, $F(3, 85) = 2.69, p = .05, \eta = .29$, indicating that the relative optimism of participants in the supportive audience condition was found mainly when they were competing against the easy criterion. When the criterion was difficult, supportive audience participants were again the most optimistic, but their estimates were on average almost identical with their actual scores (mean difference = 0.15).

Perceptions of the audience. The perceptions of performance may be a reflection of the participants' assessments of the audience. Overall, participants found supportive audiences to be more likable ($M = 8.19$) than either neutral ($M = 6.43$) or adversarial ($M = 5.96$) audiences, $F(2, 66) = 5.61, p < .01, \eta = .38$. Supportive audiences were perceived as being more helpful ($M = 3.50$) than either neutral ($M = 1.86$) or adversarial ($M = 2.14$) audiences, $F(2, 66) = 4.03, p < .05, \eta = .33$. Supportive audiences were also perceived to be highly comforting and friendly ($M_s = 3.31$ and 6.46 , respectively), whereas neutral audiences were rated moderately ($M_s = 2.36$ and 3.68 , respectively) and adversarial audiences were neither comforting nor friendly ($M_s = 1.71$ and 2.81 , respectively), $F(2, 66) = 4.98, p < .01, \eta = .36$ for comforting, and $F(2, 66) = 17.03, p < .0001, \eta = .58$ for friendly. Furthermore, participants felt that supportive audiences were less distracting ($M = 2.50$) than either neutral ($M = 3.72$) or adversarial ($M = 4.47$) audiences, $F(2, 63) = 4.42, p < .05, \eta = .36$.

Gender. There were significant main effects for gender on performance on the video game. Women had slower final times ($M = 52.71$) than men ($M = 47.93$ s), $F(1, 91) = 38.37, p < .001, d = 1.30$, and they crashed more often on the final trial ($M = 5.42$) than men ($M = 3.71$), $F(1, 91) = 8.96, p < .01, d = 0.63$. However, gender did not yield any significant interactions with either audience support or criterion difficulty. Although women had slower trials, the general pattern of means was the same as for men. There also were no significant differences in perceptions of the audience or mood that were meaningful for this research. Thus, there were main effects for the video game, but no meaningful gender effects for performance with a supportive audience.

Discussion

In Experiment 3, we again found that supportive audiences led to poorer performances than neutral audiences on a difficult skilled task. Performers in the difficult criterion condition scored worse when the audience was supportive than when the audience

was neutral, adversarial, or nonexistent. Performers showed a decrement in speed (but no offsetting improvement in accuracy) with a supportive audience, as compared with other conditions.

It is also noteworthy that participants in the supportive audience, difficult condition showed poorer performance on the final trial than on their own baseline average. In Experiment 2, the impairments caused by supportive audiences were relative rather than absolute. Experiment 3 should to some extent rectify this problem, because we found impairments in both relative and absolute terms. The supportive audience (combined with the difficult criterion) made people perform worse than they had done previously.

These decrements were primarily found when the criterion for success was relatively difficult. When the criterion for success was easy, the attitude of the audience made far less difference. Hence, it appears that the supportive nature of the audience interacts with the difficulty of the task. Having a supportive (or adversarial) audience will have the greatest impact on performance on difficult or challenging tasks. When success is fairly easy, the supportive nature of the audience seems to have much less effect on performance level. This is not simply a matter of a ceiling effect: The actual performance scores were similar regardless of whether the criterion was easy or difficult. What changed was whether those scores were affected by the attitude of the audience. Although participants were reasonably successful against the difficult criterion when the audience was adversarial or when there was no audience, they failed abysmally when the audience was supportive.

The results of Experiment 3 confirm that the performance decrements were attributable to the supportive attitude of the audience, as opposed to reflecting degree of audience involvement. Performers who had an adversarial audience (who explicitly hoped that the performer would do badly) scored well overall. Those participants worked quickly and were able to maintain a reasonable degree of accuracy, so that they had a high rate of success against their goals.

Subjective ratings suggested that performers preferred supportive audiences despite the potential for detrimental effects on performance. The contrast between the subjective and objective effects of supportive audiences was dramatic. Whereas adversarial audiences were rated as producing stress, reducing positive emotions, and being generally unpleasant, the supportive audience was consistently rated as being the most desirable and pleasant of all performance situations we studied. This presents a striking contrast to the performance data, which, as already noted, favored the adversarial audience over the supportive one. It is possible that performers expected that the supportive audience would be helpful and the adversarial audience debilitating and that the final ratings would be affected by these initial expectations. Research on social support has shown that perceptions of support are influenced by expectations that such support will be provided. Perceptions of support are only loosely related to the actual support that is provided, particularly in stressful situations (Pierce, Sarason, & Sarason, 1992; Sarason et al., 1988). Ratings of situations as being positive or negative can also be affected by expectations (Showers, 1992). Expectations about the potential influence of the audience (i.e., supportive audiences should be helpful and adversarial audiences should

be harmful) seem to have influenced perceptions of support and overall evaluations of the final task.

There was evidence to suggest that the potentially harmful effects of a supportive audience have some links to increased self-focus. Supportive audiences did generate the highest levels of self-focus, and high self-focus was negatively correlated with performance across the entire sample. Thus, people who were the most self-aware performed worst, and participants tended to be more self-aware with supportive audiences than in any other condition. Still, our data did not confirm that the effects of supportive audiences on performance were mediated by self-awareness.

The pattern of futile caution was found in this study, as in the previous ones. It is necessary to acknowledge, however, that our data fall short of confirming that speed-accuracy trade-offs mediate directly between audience support and poor performance. The speed scores did not reveal an interaction between audience support and criterion difficulty, whereas performance scores did show an interaction, and the lack of parallel effects is one prerequisite for concluding that direct mediation exists (R. M. Baron & Kenny, 1986).

Finally, the data on self-perceptions of performance suggested one possible resolution for the seeming paradox that performers preferred the audience that elicited the poorest performance. Performers who had supportive audiences estimated their performance to have been better than it actually was, unlike performers in all other conditions. Thus, performers were apparently unaware not only of the fact that supportive audiences cause them to perform poorly but also of the fact that they were performing poorly at all.

The results of Experiment 3 provide further support for the role of performer expectancies in social facilitation. Social facilitation theory proposes that audiences improve performance on easy tasks but impair performance on difficult tasks (Zajonc, 1965), and our results confirm this. When we compared the no-audience condition with the neutral audience condition, the presence of an audience caused performers to score better against the easy criterion but worse against the difficult criterion. These results are especially noteworthy because the actual task, and thus presumably the dominant response, was identical in all conditions. All that differed was the difficulty of the goal criterion. These results are consistent with the idea that performer expectancies may be sufficient to produce social facilitation effects independent of changes in the actual difficulty of the task (Bond, 1982; Sanna, 1992).

General Discussion

The results of three experiments converge to show that supportive audiences can be detrimental to skilled performance on a difficult, challenging task. In all three experiments, performers who believed their audience consisted of a supportive observer who wanted them to succeed scored more poorly than people who believed they were being observed by a neutral audience. In Experiment 1, the supportive audience consisted of a personal friend selected by the performer. In Experiments 2 and 3, the audience consisted of a stranger who cheered for the performer and who could win money if the performer succeeded at the task. Despite the appeal of the sympathetic audience, people

performed worse when the audience was supportive than when the audience was neutral or nonsupportive.

We did not find that supportive audiences had incontrovertible negative effects on performance. Supportive audiences impaired performance when the standard for success was high, but this impairment vanished if the criterion for success was easy to surpass. In Experiments 1 and 2, the tasks were challenging and participants were likely to have anticipated failure, and they were more likely to do so when the audience was supportive than when the audience was neutral. In Experiment 3, the harmful effects of a supportive audience were found only when people were performing against a difficult, challenging criterion. Having a supportive audience did not affect performance against an easy criterion.

Ironically, people preferred supportive audiences and felt better in front of them than in front of neutral or adversarial audiences. Perhaps because they expected that the audience would be helpful, people liked supportive audiences and felt comforted by them; this was true regardless of the difficulty of the task. Having a supportive audience reduced feelings of distraction and stress and led to more positive mood ratings. Despite the performance impairments, audience support did not influence other measures, such as evaluation apprehension, self-reported arousal, and self-perceived ability to cope with the stressful task. In fact, supportive audiences were not rated unfavorably relative to controls on any measure in any of the three studies. Thus, the subjective experience of having a supportive audience was generally better (or at least no worse) than the experience of having a neutral or adversarial audience despite the clear disadvantage of a supportive audience in terms of performance against challenging standards.

Although we consider it ironic that performers preferred the audience that had the most negative effect on their performance, the irony was apparently unnoticed by the participants. Previous research has suggested that people's perceptions of their performance are often inaccurate. People tend to base their estimates on how well they wanted to do rather than being able to monitor their performance as it occurs (Heckhausen & Strang, 1988). In Experiment 3, we had participants estimate their performance after the final trial. Participants with a supportive audience were more accurate than other audience conditions, but they consistently overestimated how well they had performed on the final trial. In contrast, participants in all other conditions were more conservative in their estimates and consistently underestimated the quality of their performance. Participants may have thought that the presence of a supportive audience should have been beneficial, so their estimates were biased by beliefs about the effects of the audience. It is possible that performers would have felt less sanguine about the supportive audience if they realized how adversely it affected their performance.

We also found some evidence that supportive audiences engendered higher levels of self-focus, although this was not the main focus of our research. When the audience was supportive, people made marginally more self-referent statements (Experiment 2) and scored higher on a measure of state self-awareness (Experiment 3). Baumeister (1984) provided evidence that skill-based tasks are impaired when performers attend to themselves. Presumably, the impairment occurs because executing skills involves the use of automatic or overlearned processes

that can be disrupted when attention is directed at them. Our correlational findings in Experiments 2 and 3 suggest that higher self-focus is linked to poorer performance. The pattern of decrements caused by the presence of a supportive audience does indicate that performers choke under the pressure of the supportive audience. Although our data fall short of indicating that increased self-awareness is a crucial link mediating between supportive audiences and impaired performance, there could well be some connection.

We repeatedly found evidence that performers responded to the supportive audience with a performance style we have labeled *futile caution*. The experimental tasks in all three experiments involved some degree of apparent trade-off between speed and accuracy. In each experiment, we found that people worked more slowly in front of a supportive audience than a neutral audience or other control group. This strategy may have been motivated by the desire to avoid the embarrassment of disappointing the supportive audience or looking foolish because of mistakes; self-presentational concerns could have caused the performer to work slowly and take few risks (Bond, 1982). Presumably, participants worked more slowly in an effort to ensure accuracy, but in no study was there any evidence that participants were more accurate when the audience was supportive. In fact, in Experiment 2 accuracy declined along with speed when the audience was supportive. The cautious strategy of reducing speed to improve accuracy may have directly led to poor performance on the timed task (although speed scores did not show precisely the same pattern of results as performance scores across all conditions). The poor performances we observed came from the fact that speed and accuracy did not actually trade off in a linear fashion, as people may have hoped. When speed declines but accuracy fails to improve, performance cannot help but get worse.

Limitations

Several qualifications to these findings should be noted. First and foremost, our performance measures as well as our theorizing were all linked to skilled performance. We believe that performance processes can be broadly differentiated into controllable effort and automatic skill and that these may operate on different sets of principles. Although we found consistent evidence that supportive audiences cause impairments in skilled performance on challenging tasks, it is entirely plausible that those same audiences would not harm and might even enhance performance on effort-sensitive tasks. Thus, our conclusions about the impairment of skilled performance are not intended to generalize to effort-intensive tasks.

The discrepancy between skill and effort processes may also help explain why supportive audiences and home field advantages are often found: When success depends on effort, the effects may be much different from the patterns we found. Supportive home audiences might motivate performers to exert more effort (e.g., resisting fatigue, expending more energy, not giving up) than nonsupportive crowds. Naturally, home teams in sports have other benefits such as not having had to travel, being familiar with idiosyncrasies of the playing field, and not having to adjust to time-zone differences.

This work was stimulated in part by the conflicting indications

based on archival data from sports championships (cf. Baumeister & Steinhilber, 1984; Schlenker et al., 1995a; Schlenker, Phillips, Boneicki, & Schlenker, 1995b). Although our results have been consistent with the view that supportive audiences can lead to impaired performance, one should use caution in generalizing to professional athletes in championship contests. We used amateur performers, not professionals. We used individual performers, not teams. And we used audiences consisting of a single person as opposed to tens of thousands. One should recognize that personality differences and selection factors may help professional athletes fend off harmful effects from supportive audiences. For example, an individual who is particularly sensitive to the presence of an audience would probably not reach the professional level and might not compete in athletics at all. Although our results can probably be generalized with some confidence to the skilled performances of ordinary citizens, we accept that these data may not generalize to professional performers or others who have accumulated years of experience performing challenging tasks in front of large crowds. Put another way, our results do not directly resolve the debate about whether home sports teams choke more often in final, decisive contests. Rather, they bear on the more general issues about effects of audiences and skilled performance. The study of home sports teams was initiated in part to shed light on these broader issues, and in that context our results are relevant. However, it would be reckless to take our laboratory findings as a basis for making direct predictions about the outcomes of professional sports events.

Another set of limits to generalizability has to do with the nature of audience support. Social support, like many broad terms, has multiple meanings; in our research, the use of the term is closer to some than others. In Study 1, the supportive audience meant simply being a friend of the performer, chosen by the performer from his or her circle of friends. In Studies 2 and 3, supportiveness was operationalized by having a stake in the performance outcome (i.e., the observer would win money if the performer did well). We deliberately set up the investigation to use these two different operational definitions to provide converging evidence (which they did) and to provide laboratory models of two common meanings of supportive audiences in everyday life. Still, an audience who is supportive in the sense of wanting the performer to do well so that the audience will benefit by winning money (as in Experiments 2 and 3) is not necessarily the same as an audience who is supportive in the sense of providing unconditional positive regard. Family and friends can be expected to provide emotional support even if the performer fails, whereas in Experiments 2 and 3 the performer would have little reason to expect such sympathy after failure. (Then again, in terms of nonlaboratory performances, fans and audiences are often fickle and have been known to turn sharply critical after a few disappointments.) Meanwhile, the social support provided by our audiences did not take a palpable form in our experiments: Apart from the one brief spoken line in Experiment 3, performers did not receive any direct expressions of support, such as hugs, spoken encouragements, cheers, gifts, favors, or practical assistance, and the potential value of such benefits might well offset the detrimental effects we observed on skilled performance under difficult conditions. Hence,

our results should not be taken as a wholesale indictment of social support.

Implications

Why are supportive audiences detrimental to performance on difficult tasks? We proposed several possible reasons, although these reasons are not mutually exclusive: increased pressure and potential costs of failure, increased self-focus, self-protective strategies that end up being self-defeating, and changes in expectancies. Our results shed some light on each of these.

The view that supportive audiences increase the pressure to perform well is plausible because, presumably, it is extra costly to fail in front of a supportive audience. Greater pressure could set off aversive or misregulating responses that could cause the person to choke. However, if this pattern of threat and pressure were operating in our experimental situation, we would have expected to find some evidence of increased negative feelings associated with supportive audiences. Instead, our data showed that performers had consistently positive views of the supportive audience and even overestimated their performance with a supportive audience. They rated the supportive audiences as being more pleasant and less stressful than others. Thus, despite the intuitive appeal of the view that failure is more costly when observed by a supportive audience, that view does not adequately explain our findings. We found no sign that the supportive audience increased feelings of pressure, threat, or stress.

The second theory is that supportive audiences make performers more self-aware and that self-awareness is detrimental to skilled performance. Several of our results were consistent with this theory. As in previous work, we found that higher state self-awareness was correlated with poor performance. We also found that supportive audiences were associated with particularly high levels of state self-awareness. Possibly supportive audiences engender self-awareness because the performer can empathize with them more than with other audiences. Because the performer can easily imagine watching himself or herself from the audience's perspective, the outcome is doubly significant to the performer. It is not entirely clear why supportive audiences have this effect, but the effect itself seems clear from our data.

On the other hand, our data analyses failed to confirm that increases in self-awareness mediated the decrements in performance. Possibly this reflects some of the difficulties in measuring self-awareness, but without stronger evidence it is not warranted to conclude that self-awareness mediated the performance outcomes. Another relevant point is that if self-awareness impaired skill, this should be reflected by a drop in accuracy. Neither Experiment 1 nor Experiment 3 showed any decrement in accuracy in the supportive audience condition (although Experiment 2 did). The lack of reliable decreases in accuracy casts further doubt on the interpretation that impaired skill, caused by an increase in self-awareness, was what led to the poor performance.

The third view is that supportive audiences elicit a self-protective orientation that takes precedence over achievement goals and may detract from performance quality. Our results repeatedly suggest that performers shifted to a more cautious style in front of the supportive audience. Participants in our experiments reduced speed, presumably in an attempt to increase accuracy.

As we noted, however, the gains in accuracy were not forthcoming and so performance quality declined. In contrast, adversarial audiences stimulated performers to adopt an aggressive, risky style that resulted in performance gains; participants were able to either maintain or in some cases increase accuracy as they increased speed.

Taken together, the speed-accuracy findings suggest that futile caution is an important mediator of the effects of the audience's attitude on the performer. Apparently, many people have the erroneous perception that decreasing speed will directly improve accuracy, thereby improving performance. In fact, the trade-off between speed and accuracy is far from linear, and we found in some cases that speed and accuracy seemed to vary independently or even together rather than inversely. Hence, people may often find it self-defeating and counterproductive to sacrifice (controllable) speed in an attempt to improve (uncontrollable) accuracy.

The fourth possibility is that supportive audiences would alter the expectancies of performers. Presumably, supportive audiences hold favorable expectancies for performers, which the performers would then accept and internalize. However, increased expectancies should improve performance rather than produce the impairments we found. Although we found little evidence of internalized expectancies affecting performance, our results did suggest that manipulated expectancies may interact with audience effects. In particular, we found that supportive audiences mainly impaired performance when the criterion for success was difficult (and so expectancies would be unfavorable). This suggests that if an individual has a high degree of confidence in his or her chances to succeed, the detrimental effects of having a supportive audience could be reduced or eliminated. Our data showed that individual success expectancies do enhance performance but that audience success expectancies are more harmful, consistent with what Baumeister et al. (1985) found.

These results also fit well with the suggestion by Schlenker et al. (1995a) that it is fear of failure rather than self-conscious dreams of success that contribute to causing people to choke under pressure. In particular, it seems to be the combination of unfavorable expectancies with a supposedly advantageous situation that is most detrimental to performance. Schlenker et al. found that players made the most fielding errors (which signify poor performance) when playing at home but trailing in a championship game. We found the poorest performance when people had a supportive audience but were playing against a challenging, difficult criterion.

As we said, these four theories are not mutually exclusive. On the basis of our results, therefore, the most plausible conclusion seems to be that the detrimental effects of supportive audiences are mediated by some combination of unfavorable expectations (possibly generating fear of failure) and adopting a nonoptimal performance style featuring futile caution. There may also be some contribution of increased self-awareness, but it does not appear to contribute directly to the drop in performance in front of the supportive audience. We did not find any signs that people found supportive audiences aversive, threatening, or stressful.

Meanwhile, having an adversarial audience seems to have the opposite effect. Performers may feel that they have little at stake vis-à-vis the adversarial audience because the audience will not

come around to liking them anyway. When the audience is adversarial, performers do not need to worry about making mistakes or disappointing the audience. Performers can respond to the difficult and challenging situation by adopting an aggressive style and taking risks, including increasing speed, which enables many of them to perform successfully.

Conclusion

People are often faced with the need to perform skillfully on difficult tasks in public settings that include spectators. Under such circumstances, they often express the wish to have friends, relatives, and other supporters present in the audience. Indeed, in many cases, performers will obtain tickets or take other steps to ensure the presence of friendly faces in the crowd.

Our results provide insight into why people will seek out a supportive audience, even while showing that having a supportive audience is sometimes self-defeating and counterproductive. Participants in our studies reported feeling much better in many ways when performing in front of a supportive audience as opposed to a neutral or adversarial one. The positive effects of a supportive audience extended to the realm of positive illusions, to the extent that performers tended to overestimate the quality of their performance when the audience was supportive. In short, supportive audiences help people feel better and help them think they are doing better.

On objective measures, though, they were not doing better. The emotional benefits of the supportive audience must be weighed against the evidence, consistent across our three studies, that such favorable audiences caused people to perform badly on difficult tasks. Ironically, the adversarial audience, which performers rated as being relatively unpleasant, elicited the best performances. Even neutral audiences elicited better performance than supportive ones.

All of this suggests that people actually face a difficult trade-off when preparing for an upcoming performance under demanding conditions. To choose between a supportive and a neutral or adversarial audience is to choose between feeling better versus doing better. It may be comforting to know that one's big performance is being watched by others who are pulling for one to succeed and hoping for a positive outcome, but it can also be counterproductive. When little is at stake, the subjective benefits of the supportive audience may outweigh the performance costs. Indeed, when success is easily attainable, there may be no cost to having friendly faces in the crowd. When the quality or outcome of a challenging, skilled performance is truly important, however, performers may be best advised to tell their friends and lovers to stay away.

References

- Allen, K., Blascovich, J., Tomaka, J., & Kelsey, R. M. (1991). The presence of human friends and pet dogs as moderators of autonomic reactivity to stress in women. *Journal of Personality and Social Psychology*, *61*, 582–589.
- Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, *6*, 359–372.
- Bandura, A. (1989). Self-regulation of motivation and action through internal standards and goal systems. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 19–85). Hillsdale, NJ: Erlbaum.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Baron, R. S. (1986). Distraction/conflict theory: Progress and problems. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 1–40). New York: Academic Press.
- Baron, R. S., Cutrona, C. E., Hicklin, D., & Russell, D. W. (1990). Social support and immune function among spouses of cancer patients. *Journal of Personality and Social Psychology*, *59*, 344–352.
- Baumeister, R. F. (1982). A self-presentational view of social phenomena. *Psychological Bulletin*, *91*, 3–26.
- Baumeister, R. F. (1984). Choking under pressure: Self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, *46*, 610–620.
- Baumeister, R. F. (1995). Disputing the effects of championship pressures and home audiences. *Journal of Personality and Social Psychology*, *68*, 644–648.
- Baumeister, R. F., Hamilton, J., & Tice, D. M. (1985). Public versus private expectancy of success: Confidence booster or performance pressure? *Journal of Personality and Social Psychology*, *48*, 1447–1457.
- Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1993). When ego threats lead to self-regulation failure: Negative consequences of self-esteem. *Journal of Personality and Social Psychology*, *64*, 141–156.
- Baumeister, R. F., Hutton, D. G., & Cairns, K. J. (1990). Negative effects of praise on skilled performance. *Basic and Applied Social Psychology*, *11*, 131–148.
- Baumeister, R. F., & Steinhilber, A. (1984). Paradoxical effects of supportive audiences on performance under pressure: The home field disadvantage in sports championships. *Journal of Personality and Social Psychology*, *47*, 85–93.
- Bolger, N., Foster, M., Vinokur, A. D., & Ng, R. (1996). Close relationships and adjustment to a life crisis: The case of breast cancer. *Journal of Personality and Social Psychology*, *70*, 283–294.
- Bond, C. F. (1982). Social facilitation: A self-presentational view. *Journal of Personality and Social Psychology*, *42*, 1042–1050.
- Brown, B. R., & Garland, H. (1971). The effects of incompetence, audience acquaintanceship, and anticipated evaluative feedback on face-saving behavior. *Journal of Experimental Social Psychology*, *7*, 490–502.
- Bruskin Associates. (1973). What are Americans afraid of? *The Bruskin Report: A Market Research Newsletter*, *53*.
- Butler, J. L., & Baumeister, R. F. (1997). *Succeeding versus not failing: The effect of goal framing on performance*. Unpublished manuscript.
- Cialdini, R. B., Borden, R., Thorne, A., Walker, M., Freeman, S., & Sloane, L. T. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology*, *34*, 366–375.
- Cohen, S., & McKay, G. (1984). Social support, stress, and the buffering hypothesis: A theoretical analysis. In A. Baum, J. E. Singer, & S. E. Taylor (Eds.), *Handbook of psychology and health* (Vol. 4, pp. 253–267). Hillsdale, NJ: Erlbaum.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*, 310–357.
- Courneya, K. S., & Carron, A. V. (1991). Effects of travel and length of home stand/road trip on the home advantage. *Journal of Sport and Exercise Psychology*, *13*, 42–49.
- Coyne, J. C., Wortman, C. B., & Lehman, D. R. (1988). The other side of support: Emotional overinvolvement and miscarried helping. In C. G. McClintock (Ed.), *Experimental social psychology* (pp. 185–236). New York: Holt.

- Cutrona, C. E. (1996). *Social support in couples: Marriage as a resource in times of stress*. Thousand Oaks, CA: Sage.
- Davis, D., & Brock, T. C. (1975). Use of first person pronouns as a function of increased objective self-awareness and performance feedback. *Journal of Experimental Social Psychology*, *11*, 381-388.
- Downey, G., & Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*, *70*, 1327-1343.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, *70*, 461-475.
- Feather, N. T. (1969). Attributions of responsibility and valence of success and failure in relation to initial confidence and task performance. *Journal of Personality and Social Psychology*, *13*, 129-144.
- Fenigstein, A., Scheier, M. F., & Buss, A. H. (1975). Public and private self-consciousness: Assessment and theory. *Journal of Consulting and Clinical Psychology*, *43*, 522-527.
- Fleming, J. S., & Courtney, B. E. (1984). The dimensionality of self-esteem: II. Hierarchical facet model for revised measurement scales. *Journal of Personality and Social Psychology*, *46*, 404-421.
- Gates, G. S., & Rissland, L. Q. (1923). The effect of encouragement and discouragement upon performance. *Journal of Educational Psychology*, *14*, 21-26.
- Geen, R. G. (1989). Alternative conceptions of social facilitation. In P. B. Paulus (Ed.), *Psychology of group influence* (2nd ed., pp. 15-51). Hillsdale, NJ: Erlbaum.
- Heaton, A. W., & Sigall, H. (1989). The "championship choke" revisited: The role of fear of acquiring a negative identity. *Journal of Applied Social Psychology*, *19*, 1019-1033.
- Heckhausen, H., & Strang, H. (1988). Efficiency under record performance demands: Exertion control—An individual difference variable? *Journal of Personality and Social Psychology*, *55*, 489-498.
- Hill, C. A. (1987). Affiliation motivation: People who need people. . . . But in different ways. *Journal of Personality and Social Psychology*, *52*, 1008-1018.
- Hirt, E. R., Zillman, D., Erickson, G. A., & Kennedy, C. (1992). Costs and benefits of allegiance: Changes in fans' self-ascribed competencies after team victory versus defeat. *Journal of Personality and Social Psychology*, *63*, 724-738.
- Isen, A. M., Nygren, T. E., & Ashby, F. G. (1988). Influence of positive affect on the subjective utility of gains and losses: It is just not worth the risk. *Journal of Personality and Social Psychology*, *55*, 710-717.
- Janis, I. L., & Field, P. (1959). Sex differences and personality factors related to persuasibility. In C. Hovland & I. Janis (Eds.), *Personality and persuasibility* (pp. 55-68, 300-302). New Haven, CT: Yale University Press.
- Jones, E. E., & Pittman, T. S. (1982). Toward a general theory of strategic self-presentation. In J. Suls (Ed.), *Psychological perspectives of the self* (Vol. 1, pp. 231-262). Hillsdale, NJ: Erlbaum.
- Kamarck, T. W., Manuck, S. B., & Jennings, J. R. (1990). Social support reduces cardiovascular reactivity to psychological challenge: A laboratory model. *Psychosomatic Medicine*, *52*, 42-58.
- Kimble, G., & Perlmutter, L. (1970). The problem of volition. *Psychological Review*, *77*, 361-384.
- Krause, N., & Borawski-Clark, E. (1994). Clarifying the functions of social support in later life. *Research on Aging*, *16*, 251-279.
- Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology*, *37*, 822-832.
- Leith, K. P., & Baumeister, R. F. (1996). Why do bad moods increase self-defeating behavior? Emotion, risk-taking, and self-regulation. *Journal of Personality and Social Psychology*, *71*, 1250-1267.
- Leith, L. M. (1988). Choking in sports: Are we our own worst enemies. *International Journal of Sport Psychology*, *19*, 59-64.
- Lewis, B. P., & Linder, D. E. (1997). Thinking about choking? Attentional processes and paradoxical performance. *Personality and Social Psychology Bulletin*, *23*, 937-944.
- Pace, A., & Carron, A. V. (1992). Travel and the home advantage. *Canadian Journal of Sport Psychology*, *17*, 60-64.
- Pierce, G. R., Sarason, B. R., & Sarason, I. G. (1992). General and specific support expectations and stress as predictors of perceived supportiveness: An experimental study. *Journal of Personality and Social Psychology*, *63*, 297-307.
- Sanna, L. J. (1992). Self-efficacy theory: Implications for social facilitation and social loafing. *Journal of Personality and Social Psychology*, *62*, 774-786.
- Sarason, B. R., Sarason, I. G., & Pierce, G. R. (1988). *Social support: An interactional view*. New York: Wiley.
- Schlenker, B. R. (1980). *Impression management: The self-concept, social identity, and interpersonal relationships*. Monterey, CA: Brooks/Cole.
- Schlenker, B. R., & Leary, M. R. (1982). Audience's reactions to self-enhancing, self-denigrating, and accurate self-presentations. *Journal of Experimental Social Psychology*, *18*, 89-104.
- Schlenker, B. R., Phillips, S. T., Boneicki, K. A., & Schlenker, D. R. (1995a). Championship pressures: Choking or triumphing in one's own territory? *Journal of Personality and Social Psychology*, *68*, 632-641.
- Schlenker, B. R., Phillips, S. T., Boneicki, K. A., & Schlenker, D. R. (1995b). Where is the home choke? *Journal of Personality and Social Psychology*, *68*, 649-652.
- Schwartz, B., & Barsky, S. F. (1977). The home advantage. *Social Forces*, *55*, 641-661.
- Showers, C. (1992). The motivational and emotional consequences of considering positive or negative possibilities for an upcoming event. *Journal of Personality and Social Psychology*, *63*, 474-484.
- Silva, J. M., & Andrew, J. A. (1987). An analysis of game location and basketball performance in the Atlantic Coast Conference. *International Journal of Sport Psychology*, *18*, 188-204.
- Silver, R. C., Wortman, C. B., & Crofton, C. (1990). The role of coping in support provision: The self-presentational dilemma of victims of life crises. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social support: An interactional view* (pp. 397-426). New York: Wiley.
- Stinson, L., & Ickes, W. (1992). Empathic accuracy in the interactions of male friends versus male strangers. *Journal of Personality and Social Psychology*, *62*, 787-797.
- Taylor, S. E., Falke, R. L., Mazel, R. M., & Hilsberg, B. L. (1988). Sources of satisfaction and dissatisfaction among members of cancer support groups. In B. H. Gottlieb (Ed.), *Marshalling social support: Formats, processes, and effects* (pp. 187-208). Newbury Park, CA: Sage.
- Tesser, A., & Campbell, C. J. (1982). Self-evaluation maintenance and the perception of friends and strangers. *Journal of Personality*, *50*, 261-279.
- Tesser, A., Campbell, C. J., & McIntosh, W. D. (1989). Self-evaluation maintenance and the mediational role of emotion: The perception of friends and strangers. *Journal of Personality and Social Psychology*, *57*, 442-456.
- Tice, D. M., Butler, J. L., Muraven, M., & Stillwell, A. M. (1995). When modesty prevails: Differential favorability of self-presentation to friends and strangers. *Journal of Personality and Social Psychology*, *69*, 1120-1138.
- Triplet, N. (1898). The dynamogenic factors of pacemaking and competition. *American Journal of Psychology*, *9*, 507-533.
- Van Raalte, J. L., Brewer, B. W., Lewis, B. P., Linder, D. E., Wildman, G., & Kozimer, J. (1995). Cork! The effects of positive and negative

- self-talk on dart-throwing performance. *Journal of Sport Behavior*, 18, 50-57.
- Varca, P. E. (1980). An analysis of home and away game performance of male college basketball teams. *Journal of Sport Psychology*, 2, 245-257.
- Wheeler, L., & Nezlek, J. (1977). Sex differences in social participation. *Journal of Personality and Social Psychology*, 35, 742-754.
- Wright, R. A., Tunstall, A. M., Williams, B. J., Goodwin, J. S., & Harmon-Jones, E. (1995). Social evaluation and cardiovascular response: An active coping approach. *Journal of Personality and Social Psychology*, 69, 530-544.
- Zajonc, R. B. (1965). Social facilitation. *Science*, 149, 269-274.
- Zajonc, R. B. (1980). Compresence. In P. B. Paulus (Ed.), *Psychology of group influence* (pp. 35-60). Hillsdale, NJ: Erlbaum.

Received December 11, 1997

Revision received June 22, 1998

Accepted June 22, 1998 ■