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Getting Excited About Public Speaking: A Replication

Can three little words improve a person's public speaking performance? Brooks (2014, Study 2) predicted and found that college students who were instructed to say aloud "I am excited" before delivering a stressful 2-3 min speech reported feeling more excited but not less anxious, compared to participants who were instructed to say "I am calm." As Brooks also predicted, independent judges rated the performance of the "excited" group as better than the "calm" group across four indices (persuasive, competent, confident, persistent), and the "excited" group had longer speech duration. In a direct replication and extension, we found nearly identical results for self-report, but no differences between conditions on any observer ratings of performance, nor on an additional indirect measure of anxiety (Emotional Stroop). We discuss why this minimal reappraisal intervention affected self-report but did not result in observable improvements in public speaking.

Key words: anxiety, communication, reappraisal, public speaking, communication education

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Public speaking anxiety (PSA) is a problem for many people, especially college students (Dwyer & Davidson, 2012). Although a variety of treatments are available (see Bodie, 2010; Pull, 2012), they are not typically an easy fix. Yet Brooks (2014, Study 2) reported that the simple act of saying “I am excited” one time, immediately before a stressful speaking task, increased participants’ feelings of excitement, and improved observer-rated performance, compared to participants who were instructed to say “I am calm.” Brooks’s study has been cited over 450 times to date in academic journals, and has received considerable attention in the popular press and in textbooks as a solution for dealing with PSA. Despite this widespread interest, no attempts at replication have been published. Replication and reproducibility are particularly important when results are being used to inform recommendations for interventions. We therefore sought to investigate whether this brief intervention would be effective in our student population, by performing a direct replication and extension of Brooks’s study.

Specifically, Brooks (2014, Study 2) predicted that reappraising anxious arousal as “excitement” would be more effective than trying to “calm down” because anxiety and excitement involve similar levels of arousal. She asked 140 college students at an elite university in the northeastern United States (63 men, 77 women; $M_{age} = 20.24$ years; $SD = 1.80$) to deliver a 2-3 min speech about “why you are a good work partner” in front of an impassive observer and a video camera. Participants were told that the videotape would be viewed later by a committee of peers. Supporting all of Brooks’ predictions, participants in the “excited” reappraisal condition reported higher levels of excitement (but not lower levels of anxiety or higher levels of self-efficacy); were judged by raters to be more persuasive, competent, confident, and persistent (but not more excited or less anxious) and spoke longer compared with participants in the “calm” condition. Surprisingly, a principal component analysis showed that each of the observer ratings loaded on a separate factor, even though conceptually these attributes would be expected to be highly associated (e.g., judgment of a person’s anxiety would be expected to correlate with a judgment of the person’s confidence; see Rapee & Lim, 1992). Brooks concluded that the effects of the manipulation, as well as results from parallel studies on singing (Study 1) and math anxiety (Study 3), were mediated by a change from a “threat” mindset to an “opportunity” mindset (Study 4).

Our primary hypotheses were the same as Brooks’s (2014, Study 2): that participants in the “excited” condition would report higher levels of excitement, would be judged to be more persuasive, competent, confident, and persistent, and would speak longer. We used the same assessments and followed the same methods described by Brooks, except where indicated.

In an effort to detect potential subtle effects of the reappraisal manipulation on feelings of anxiety (which Brooks did not predict nor find using self-report measures), we extended the study by adding the Emotional Stroop task as a dependent variable. The Emotional Stroop is considered a measure of attentional bias to threat because people have been shown to take longer to read “threatening”

words than neutral words. In addition, feeling threatened increases this effect (Williams et al., 1996). The Emotional Stroop was reported to be sensitive to feelings of anxiety in a similar evaluated speaking task (Jamieson et al., 2013). Therefore, our secondary hypothesis was that because participants in the “excited” condition would feel less anxiety, they would show smaller effects of the threatening words (i.e., less difference in reading time between threatening words and neutral words) than participants in the “calm” condition.

In addition, we screened participants’ PSA, generalized anxiety, social anxiety, and depression through self-report questionnaires to better describe our sample and to identify possible confounding effects of these factors on experimental conditions. The Emotional Stroop and additional questionnaires were all given after the participant’s speech and self-report speech ratings, to avoid any potential effects on our replication of the original study, and in the case of the Stroop, to be consistent with Jamieson et al.’s (2013) procedure.

Method

Participants

The sample consisted of 74 participants, including 53 women and 21 men ($M_{age} = 19.6$ years, $SD = 2.2$), recruited from introductory psychology courses at a small, open-access, midwestern university in the United States. Self-reported ethnicity was 49 White, 11 Black, 8 Hispanic/Latino, and 6 other/mixed. Participants were required to have native English-speaking ability and be at least 18 years old. They received research credit for participation. This study was approved by the university’s Institutional Review Board. Although study recruitment was discontinued earlier than originally planned due to pandemic constraints, the sample nevertheless was large enough have a high likelihood of detecting effects if they were present, as described under *Sample Size and Data Analysis*.

Experimenters

Experimenters were six graduate and undergraduate students enrolled in a psychology research laboratory course (5 female, 1 male, age range 21-30 years) who were assigned to time slots and roles based on availability. None of the experimenters were familiar with any of the participants. The gender combination for the experimenters who observed the speeches and the participants, respectively, were 6 male/male; 16 male/female, 15 female/male, and 37 female/female.

Measures

Self-report Speech Ratings

Immediately after delivering a speech, participants completed eight self-report ratings about their feelings prior to the speech, each on a 7-point Likert-type scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). The items were designed to

measure anxiety (mean of participants' ratings for the three items "I felt anxious," "I felt tense," "I felt nervous"), excitement (mean of two ratings: "I felt excited," "I felt enthusiastic"), and self-efficacy with regard to public speaking (mean of three ratings: "I am confident in my speaking ability," "When giving a speech in front of other people, I am able to succeed even if I have problems," "When asked to give a speech in front of other people, I am certain that I will do well").¹

Observer Ratings/ Duration

Four different undergraduate and graduate psychology research students (3 female, 1 male) served as independent raters. The raters had no prior involvement with the study, and were blind to all aspects of the experiment and hypotheses. Working in isolation, they each rated the videos of every participant, using Brooks' (2014, Study 2) 7-point Likert-type scales ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). The raters were instructed to watch the entire video of each speech before rating. Prior to viewing participant videos, they watched and rated three practice videos of pilot participants (not included in the study) to ensure that they understood the task. The authors considered the practice ratings to be reasonable, and asked the raters if they had any questions or uncertainties. None expressed concerns. The raters then independently watched and rated the participant speeches.

Two items measured "persuasiveness" ("The speaker was persuasive," "The speaker would be a good work partner"; intra-rater Cronbach's α s = .76 to .91), two items measured confidence ("The speaker was confident," "The speaker seemed self-assured"; α s = .92 to .98), and three items measured competence ("The speaker was intelligent," "The speaker knew what s/he was talking about," "The speech made sense"; α s = .74 to .93). Scores were averaged for each rater. Single items measured anxiety ("The speaker was anxious"), excitement ("The speaker was excited"), and persistence ("The speaker was persistent"). Ratings for these six categories were then averaged across raters. Intra-class correlation coefficients (two-way random effects model) showed good inter-rater reliability: persuasiveness, α = .832; confidence, α = .861; competence, α = .805; anxiety, α = .844; excitement, α = .811; and persistence, α = .747. Note that for "duration" of speech, it was unclear from Brooks's original study (2014, Study 2) whether the speaker's time included the time after prompting if they spoke less than 2 min. Within our sample, nine participants in each condition did not speak the required time and thus required prompting. We did not further analyze duration because of this ambiguity, and instead relied on the observer rating of "persistence," which was highly correlated with duration (r = .87, p < .002) in Brooks's sample.

¹ On the basis of information from Brooks (A. Brooks, personal communication, November 15, 2019), 51 participants completed additional post-speech self-report ratings of feelings during the speech, although these questions were not described in Brooks' original study (2014, Study 2). These results were highly consistent with results from our questions about how participants felt before the speech. Because the new questions were answered by fewer participants and do not appear to add useful information, we do not discuss them further. All other aspects of self-report measures were identical to Brooks as far as we were able to determine.

Emotional Stroop

Following Jamieson et al. (2013; based on Williams et al., 1996), participants were asked to quickly and accurately name the font color (red, green, or blue) for a list of 100 neutral words (e.g., “bridges”) and a separate list of 100 threat words (e.g., “enemy”); the order was counterbalanced. Interference scores were computed by subtracting completion time for the neutral list from completion time for the threat list.

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Questionnaires

Personal Report of Public Speaking Anxiety (PRPSA). The PRPSA (McCroskey, 1970) has 34 statements reflecting trait PSA, assessed with a 5-point Likert scale, and a range of possible scores from 34-170. McCroskey reported that the PRPSA has high internal consistency ($\alpha = 0.94$), and suggested PSA classification levels as follows: Low = 34-97; Moderate = 98-131; High = 132-170.

Generalized Anxiety Disorder-7 (GAD-7). The GAD-7 is a 7-item, 4-point self-report measure of anxiety over the last 2 weeks, with high internal consistency ($\alpha = 0.92$; Spitzer et al., 2006). Possible scores range from 0-21, with higher scores representing greater anxiety, and a screening cut-off of 8.

Center for Epidemiological Studies-Depression Scale-10. The CES-D-10 is a 10-item, 4-point measure of depression (Andresen et al., 1994; internal consistency was not reported). Possible scores range from 0 to 30, with higher scores representing greater depression, and a screening cut-off of 10.

Social Anxiety Disorder Scale from the Mini International Neuropsychiatric Interview (MINI). This four-question scale (Sheehan et al., 1998) is considered diagnostic of likely social anxiety disorder if all questions are answered affirmatively.

Procedure

After the participant signed an informed consent form, they were given an instruction sheet, which the experimenter read aloud, as follows: “You now have 2 minutes to prepare a persuasive public speech about why you are a good work partner. You will deliver the speech in front of another experimenter and it will also be recorded on a video camera to be judged later by a committee of peers. You must talk at least 2 minutes and no more than 3 minutes. You now have 2 minutes to prepare.” The experimenter informed the participant that they could not take notes, and left the room.

After 2 min, the experimenter led the participant to a separate room, asked them

to stand on a designated spot, pointed out two video cameras (approximately 6 and 10 ft away), and instructed them to deliver their speech to a second experimenter, who would be arriving shortly to evaluate their speech. The experimenter randomly chose an envelope containing one of two written self-statements: “I am excited” or “I am calm,” and handed it to the participant. They asked the participant to say their line out loud in response to the question “How do you feel?” and to “really try to believe it” when they delivered their line. They then asked the participant how they were feeling, listened to the reply, pointed out a timer next to the camera, reminded them about the duration requirements, and left. The second experimenter arrived, blind to the participant’s condition, and asked them to deliver the presentation. This experimenter maintained a nonsmiling expression, and made no comments except for instructions to begin and end the speech (and to continue, if the participant stopped speaking before 2 min). Following the speech, the second experimenter left the room, and the first experimenter returned. Participants completed self-ratings about the presentation, followed by the Emotional Stroop and remaining questionnaires, and a suspicion check. No participant correctly identified the purpose of the study or our hypotheses.

Sample Size and Data Analysis

Because we ended data collection early due to pandemic restrictions, we evaluated whether the statistical power based on our existing sample would be sufficient to detect predicted differences between conditions of the magnitude reported by Brooks (2014, Study 2). We used one-tailed t-tests (rather than planned two-tailed tests) to maximize power, sacrificing detection of effects in the nonpredicted direction. With $N = 74$ for self-report measures and $N = 71$ for observer ratings (due to video difficulties/withdrawal of data for three participants), our estimated power (G*Power 3; Faul et al., 2007) was deemed sufficient for Brooks’s predicted observer ratings (confidence = .90, persuasiveness = .88, persistence = .67, competence = .60). Power was lower for self-report of excitement (.53); thus, null effects for this measure should be interpreted with caution. Collecting additional data two years after the original data collection would have introduced undesirable cohort effects, especially given the reported changes in mental health related to the pandemic (Boden et al., 2021; Khan et al., 2022). Therefore, we concluded that reporting our results as they stood prepandemic would be a useful contribution to the literature, given that our calculated power was high enough to detect meaningful differences between groups for our primary variables of interest. Brooks reported no differences due to gender. Nevertheless, we also explored gender differences using two-tailed tests.

Results

Self-Report Measures

Self-report ratings showed good internal consistency for prespeech anxiety (3 items; $\alpha = .943$); prespeech excitement (2 items; $\alpha = .829$) and general self-efficacy

Table 1. Self-report and Observer Ratings by Reappraisal Condition

Measure	Excited (E)		Calm (C)		Prediction	<i>t</i>	<i>df</i>	<i>p</i> *	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Self-report ratings									
Excited	3.12	1.45	2.46	1.26	E > C	2.084	72	.021	0.486
Anxious	4.80	1.94	4.48	1.80	(E < C)	0.735	72	.768	0.171
Self-efficacy	4.00	1.60	3.93	1.48	(E > C)	0.209	72	.417	0.049
Observer ratings									
Persuasive	5.25	0.95	5.28	0.93	E > C	-0.129	69	.551	-0.031
Competent	5.14	0.88	5.28	0.72	E > C	-0.748	69	.772	-0.178
Confident	4.76	1.23	4.82	1.31	E > C	-0.217	69	.586	-0.052
Persistent	3.98	1.09	4.12	1.07	E > C	-0.510	69	.694	-0.122
Anxious	3.67	1.14	3.58	1.34	(E < C)	0.297	69	.616	0.071
Excited	2.59	0.71	2.43	0.78	(E > C)	0.879	69	.191	0.210

Note: Predictions are based on Brooks (2014, Study 2); predictions in parentheses indicate the beneficial direction for differences between conditions that Brooks neither predicted nor found. For self-ratings: Excited, $n = 34$; Calm, $n = 40$. For observer ratings: Excited, $n = 32$; Calm, $n = 39$. * One-tailed t -test

with regard to public speaking (3 items; $\alpha = .915$). As predicted, participants in the “excited” condition reported feeling significantly more excited than those in the “calm” condition, and did not differ on self-reports of anxiety or self-efficacy (see Table 1).

Observer Ratings

None of the observer ratings differed significantly between conditions, contrary to predictions for ratings of persuasion, competence, confidence, and persistence. See Table 1. A principal component analysis (PCA) indicated that all six observer ratings loaded on one factor ($> 81\%$ of variance), unlike Brooks (2014, Study 2), who found six separate factors.

To further examine the validity of observer ratings, we conducted an exploratory analysis of the correlation between these ratings and total scores on the PRPSA using two-tailed tests. As expected, PRPSA scores were positively correlated with observer ratings of anxiety, $r(69) = .372$, $p = .001$, and negatively correlated with observer ratings of persuasion, $r(69) = -.291$, $p = .013$, competence, $r(69) = -.280$, $p = .017$, confidence, $r(69) = -.399$, $p < .001$, and persistence, $r(69) = -.373$, $p = .001$, giving us confidence that our ratings were valid.

Emotional Stroop

Contrary to our prediction, the “excited” reappraisal group did not feel less anxiety than the “calm” group, as measured by difference scores on the Emotional Stroop (higher numbers reflect greater threat, Excited: $M = 1.39$ s, $SD = 9.50$; Calm: $M = -.73$ s, $SD = 12.36$; $t(71) = .569$, $p = .789$, one-tailed test).

Effects of Gender

Unlike Brooks’s (2014) Study 2, women in our study scored significantly higher than men on self-reports of anxiety (women: $M = 5.02$, $SD = 1.87$; men: $M = 3.65$, $SD = 1.49$; $t(72) = -2.996$, $p = .004$; $d = -0.773$) and lower on self-efficacy (women: $M = 3.68$, $SD = 1.49$; men: $M = 4.67$, $SD = 1.42$; $t(72) = 2.600$, $p = .011$; $d = 0.670$); there were no differences on performance ratings. Given these gender differences, we explored effects of reappraisal condition using women only (for self-ratings: Excited, $n = 25$; Calm, $n = 28$; for observer ratings: Excited, $n = 23$; Calm, $n = 27$), with one-tailed t -tests. The pattern of results was identical to the results for the entire sample for both self-report and observer ratings, with a significant difference between groups in the predicted direction only for self-reported excitement, Excited: $M = 3.06$, $SD = 1.37$; Calm: $M = 2.29$, $SD = 1.05$; $t(51) = 2.322$, $p = .012$; $d = 0.639$.

Characteristics of Sample

On the PRPSA, 35% of participants were classified in the “high” category of PSA, with 34% “moderate,” and 31% “low.” The percentage of participants who reached screening cut-offs for possible disorders were: depression (CES-D-10) 38%, anxiety (GAD-7) 42%, and social anxiety (MINI) 15%. There were no differences between conditions on any of these variables.

Discussion

Individuals who stated “I am excited” just prior to a stressful speaking task reported feeling more excited than those who stated “I am calm,” replicating Brooks’ (2014, Study 2) self-report results. In fact, our effect size ($d = .486$) was larger than in Brooks’ original study ($d = .404$). Like in Brooks, there were no differences between groups in self-reported anxiety or self-efficacy. Thus, our replication suggests that Brooks’ intervention may reliably and specifically increase self-reports of the “positive arousal” state of excitement. Our findings further suggest that participants in our replication understood and followed instructions in a way similar to Brooks’s participants.

In contrast, observers did not rate the “excited” group as superior to the “calm” group on any of six measures of performance. The statistical power of our study was sufficient to detect any meaningful effects of the intervention on performance, and none of the small differences between groups were in the predicted direction. In trying to understand why our observer findings were

different from Brooks (2014, Study 2), we looked at our overall pattern of results for observer confusion or errors. Intrarater reliability for composite measures and inter-rater reliability were good, indicating that our observers were judging in a consistent manner. In addition, the relationship between observer ratings and scores on the PRPSA were as expected. However, the relationship of observer indices with each other was different than in Brooks: we found that all six observer ratings loaded highly on one factor, consistent with research using similar types of public speaking ratings (Rapee & Lim, 1992), whereas Brooks found that all six observer ratings loaded on separate factors.²

We considered other issues that could explain our lack of difference on performance measures. The majority of our participants self-identified as female, whereas Brooks's (2014, Study 2) sample was more equally divided between female and male participants. Unlike Brooks, we found gender differences for self-reported anxiety and self-efficacy. Analyzing the effects of the intervention for women separately, however, showed nearly identical results to those of the study as a whole. It is also possible that the gender of the experimenters moderated the effects of the intervention. However, information about experimenter gender was not provided by Brooks, and we did not have adequate gender distribution to examine this effect. This factor could be important to consider in future studies.

Our participants could have differed from Brooks' (2014, Study 2) in a variety of other ways, such as academic background, experience, motivation, ethnicity, cultural influences, and trait PSA, given that Brooks' sample was from a highly selective university in a different area of the country (the ethnicity of Brooks' sample was not reported). In addition, Brooks' participants were paid, whereas ours received participation credit. Nevertheless, participants in both studies were undergraduate college students of a similar age: the presumed target population for this intervention.

A potential limitation regarding self-ratings is that the participants rated their "feelings prior to the speech" after they had completed the speech. This task thus required them to remember how they felt earlier, and their ratings could have been influenced by how they felt once the speech was over. We used this protocol to be consistent with Brooks' study (2014, Study 2). However, real-time assessment of their feelings would most likely have been a more valid measure.

Additionally, in our study as well as in Brooks' (2014, Study 2), raters were students who were trained in the lab specifically for this task, not public speaking experts. It is possible that experts might be better able to identify subtle differences in performance if they exist, whether by using global ratings or by analyzing specific body and eye movements.

Although we found no difference between conditions on an indirect

² Brooks' data were not available for independent review.

measure of anxiety, the Emotional Stroop, the large within-group variability in our sample made detection of group differences less likely. Other indices associated with anxiety, such as neurophysiological and neuroendocrine changes, may prove useful for detecting such differences in future studies.

Brooks (2014) concluded that her results “demonstrate the profound control and influence we have over our own emotions” (p. 1155). Our replication supported her results in part, in that participants reported higher levels of excitement merely by following the instruction of stating out loud that they felt excited. Because the use of these words did not appear to translate into better performance, however, the question still remains as to whether participants’ self-reports reflected a true reappraisal of their experience, as self-reports can be highly susceptible to demand characteristics. A more extensive intervention may be necessary for arousal congruent reappraisal to influence performance. Furthermore, the effectiveness of any intervention may depend on individual differences with regard to trait level of PSA, public speaking experience, level of arousal, and personality factors.

Overall, the data from our replication study suggest that Brooks’ (2014, Study 2) minimal intervention may hold promise, but additional evidence of the effectiveness of this technique is still needed before it can be accepted as a quick fix for improving performance in anxious public speakers.

Conflict of Interest Disclosure

The Author reports no conflicts of interest.

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Research Ethics Statement

We followed all ethical guidelines as described by the American Psychological Association with regard to designing, conducting, and reporting on the study. We preregistered our study and hypotheses prior to data collection on the Open Science Framework and will make our materials and data publicly available. Avila University's Institutional Review Board, Submission #43

Data Availability Statement

Data associated with the current study will be made available upon reasonable request to the corresponding author.

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