

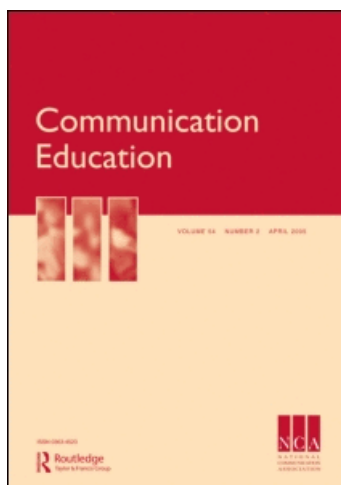
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A Racing Heart, Rattling Knees, and Ruminative Thoughts: Defining, Explaining, and Treating Public Speaking Anxiety

Graham D. Bodie

Considered by many to be the foundation upon which our discipline was built, the study of public speaking has evolved from its humble beginnings into a vast literature of experimental and expository studies. The focus of research on public speaking has primarily been to discover the antecedents, causes, and consequences of anxiety associated with anticipating or presenting a public speech in order to prescribe treatment. The purpose of this article is to provide a comprehensive review of the literature on public speaking anxiety (PSA) to serve as a foundation for future theory building and practice. Toward this end, PSA is defined and a typology of PSA constructs is developed. Then, using these constructs, research exploring the etiology of PSA is reviewed. A third section reviews techniques used to reduce PSA.

Keywords: *Public Speaking Anxiety; Speaking Fear; Remediation; Arousal; Communication Apprehension*

According to most studies, people's number one fear is public speaking. Number two is death. Death is number two? Does that seem right? To the average person that means that if they have to go to a funeral, they'd be better off in the casket than giving the eulogy.—Jerry Seinfeld

Seinfeld (1993), in his usual lighthearted manner, addressed a serious problem. According to the *Washington Business Journal* (Taking the fear and boredom out of public speaking, 2004), fear of public speaking is a mainstay atop the Gallup poll of Americans' apprehensions. Perhaps because of its ubiquity, scholars have focused a great deal of attention on the causes and correlates of communication-based anxiety (Waldeck, Kearney, & Plax, 2001). Public speaking anxiety (PSA) is a specific subtype

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of communication-based anxiety whereby individuals experience physiological arousal (e.g., increased heart rate), negative self-focused cognitions (e.g., “I’m concerned I’ll appear incompetent.”), and/or behavioral concomitants (e.g., trembling) in response to an expected or actual presentation (Daly, McCroskey, Ayres, Hopf, & Ayres, 1997). High levels of PSA can result in poor speech preparation (Daly, Vangelisti, & Weber, 1995) and decision-making (Beatty, 1988b; Beatty & Clair, 1990) and can negatively affect performance (Beatty & Behnke, 1991; Menzel & Carrell, 1994). If experienced frequently, PSA can have a lasting impact (Behnke & Sawyer, 1999; Sawyer & Behnke, 1997) and cause individuals to become avoidant (Beatty & Behnke, 1980; McCroskey & Beatty, 1984; McCroskey, Ralph, & Barrick, 1970).

Of course, presentations are a necessary part of both college and work responsibilities, and competence in public speaking is paramount to student success in and out of the classroom (Johnson & Szczupakiewicz, 1987). The importance of public speaking to employability and upward mobility is one reason for the “basic course” (Emanuel, 2005); its role is often to provide practical guidance for how to effectively speak in public (Ford & Wolvin, 1993; Gibson, Hanna, & Huddleston, 1985) and to manage the anxiety that comes with doing so (Menchhofer, 1938; Robinson, 1997). The ubiquity and importance of PSA, in addition to the fundamental role public speaking plays in students’ lives, necessitate understanding its causes, correlates, effects, and treatment. The purpose of this article is to review the PSA literature. Specifically, this review defines and highlights two important distinctions made in the extant PSA literature, the trait–state distinction and the distinction between physiological, cognitive, and behavioral manifestations of PSA. The second section discusses the interrelationships among PSA constructs. A third section reviews several treatment techniques instructors can use to help reduce PSA and its negative effects.

Public Speaking Anxiety: A Definition and Two Basic Distinctions

Since early research on “stage fright” (Clevenger, 1956, 1959; Hollingsworth, 1935; Lomas, 1937), scholars have studied PSA under various labels such as speech fear, social speech fright, speech anxiety, audience anxiety, and performance anxiety, often used interchangeably and defined in various ways (Daly, 1978; Daly & Buss, 1983, 1984). The variability in terms and specific definitions “seem to reflect theorists’ preferences for a particular word or phrase” (Schlenker & Leary, 1982, p. 662) more so than the existence of unique phenomena (Beatty, 1988c). In the most general sense PSA can be classified as a type of social anxiety, the hallmark of which “is the threat of unsatisfactory evaluations from audiences” (Schlenker & Leary, 1982, p. 646). Audience presence in addition to expectations particular to public speaking provide the situation-specific classification of PSA and distinguish it from other socially based anxieties (Clevenger, 1984). Indeed, research employing both public speaking and other social tasks to provoke anxiety (e.g., mental arithmetic in front of others) report participants show higher levels of anxiety for the public speaking tasks (al’Absi et al., 1997; Bongard, al’Absi, & Lovallo, 1998) which suggests PSA is a unique social anxiety, one that is more novel, formal, rule-based, and oftentimes self-focused.¹

The label public speaking anxiety is used in this article because doing so demarcates PSA from more general terms like stage fright or performance anxiety that can refer to anxiety experienced when acting, dancing, or singing in public. In fact, each of these types of anxiety may represent unique constructs that deserve study in their own right (Leary, 1983b, 1991). Thus, PSA is defined here as a situation-specific social anxiety that arises from the real or anticipated enactment of an oral presentation. Although seemingly straightforward, two broad distinctions are made in the extant literature—that between trait and state PSA and that between three components of PSA (physiology, cognitive, behavioral)—which open up not only several possible etiological explanations of PSA but also several options for treatment.

Trait–State Distinction

Spielberger's (1966) distinction between anxiety experienced in a particular setting at a particular time (state) and a general tendency to experience anxiety across situations and time (trait) has been "one of the most useful conceptual advancements" (Beatty & Behnke, 1991, p. 148) for PSA research and practice. Not only does this distinction allow researchers to segment the speaking situation into its component parts (Daly & Buss, 1984), it also enables remediation techniques to be more focused and potentially more successful.

Research consistently finds PSA is validly conceptualized as a trait—some individuals generally feel anxious about public speaking, whereas others do not (e.g., Ayres & Hopf, 1993; Beatty, 1988b; Beatty & Clair, 1990; McCroskey, 1997b; McCroskey & Beatty, 1986). In addition, PSA also contains an unstable component; thus, PSA can be validly conceptualized as a state. Specifically, research has identified four characteristic public speaking events: (1) anticipation—prespeech, (2) confrontation—the first speaking minute, (3) adaptation—the last speaking minute, and (4) release—time between end of speech and one minute postspeech (Behnke & Carlile, 1971; Carlile, Behnke, & Kitchens, 1977). Behnke and Sawyer (1999) have further segmented the anticipation stage into three characteristic events—immediately prior to receiving the assignment, during speech preparation, and immediately prior to speaking.

Three Systems Distinction

The second distinction can be placed in the framework of the three systems model (Miller, 1984; Patterson & Ritts, 1997; Richmond & Hickson, 2001). Originally proposed by Lang (1968), the three systems model proposes that humans respond to stressful situations like public speaking in three systems, the physiological, cognitive, and behavioral.

Physiology of PSA. The physiological system includes the central, autonomic, and somatic nervous systems as well as the cellular and humoral systems, all of which regulate the human body and its response to stress (Andreassi, 2007). Although several physiological measures exist, only a subset has actually been employed in

empirical PSA research (Beatty & Dobos, 1997). Most popular are observations of the autonomic nervous system (ANS), particularly measures of cardiovascular response such as blood pressure (BP; Dickens & Parker, 1951) and heart rate (HR; Behnke & Carlile, 1971) and measures of electrodermal activity such as palmar sweat (Clements & Turpin, 1996). Autonomic nervous system activation is “associated with fear or anxiety reactions in communication settings” (Beatty & Dobos, 1997, p. 218), and measures of ANS activity are “strong responses [that] require relatively simple instrumentation” (Behnke, 1971, p. 16).² Some research does, however, report the use of measures such as brain temperature and activity and salivary cortisol, which are thought to be more direct measures of neural activity (e.g., Behnke, Beatty, & Dabbs, 1982; Davidson, Marshall, Tomarken, & Henriques, 2000; Roberts, Sawyer, & Behnke, 2004).

In addition, more recent research obtains participant self-report of gastrointestinal, cardiopulmonary, disorientation, and numbness body sensations (Addison, Ayala, Hunter, Behnke, & Sawyer, 2004; Witt et al., 2006) using the 17-item Body Sensations Questionnaire (BSQ; Chambless, Caputo, Bright, & Gallagher, 1984). The BSQ has speakers indicate “how intensely they experienced these . . . sensations” (1 = *Not at all* to 5 = *Extremely*) at one or more of the speaking milestones (Witt et al., 2006). Alpha values for the total BSQ and its subscales range from .73 to .85 (Addison et al., 2004; McCullough, Russell, Behnke, Sawyer, & Witt, 2006; Witt & Behnke, 2006), and it performs in line with theoretical expectations (McCullough et al., 2006). To date, however, no research has established the relationship between the BSQ and traditional physiological measures (e.g., heart rate). Further, the factor structure has been questioned (Khawaja, 2003).

Cognition of PSA. Within the traditional tripartite framework, the cognitive system contains “information from the [speaker] obtained through interviews, self-report, self-monitoring, and related assessment strategies” (Ramirez, Kratochwill, & Morris, 1987, p. 150). The majority of studies exploring PSA have relied on the self-reporting of PSA (McCroskey, 1997a) using a variety of measures (see Table 1), most of which are highly correlated (Daly, 1978; Leary, 1983c; McCroskey, 1997a). In addition to these direct measures, Ayres and Sonandré (2002) have developed an indirect measure using a modification of the Stroop Task. Specifically, participants are exposed to three sets of five words—a practice set, a public speaking set (audience, presentation, public stage, and speech), and a control set. Each word is printed in a different color and participants are asked to name the color of the word. High trait PSA individuals responded to the public speaking words more slowly than low trait PSAs (McNeil et al., 1995); the anxiety high trait PSAs associate with public speaking is thought to interfere with processing capacity and, consequently, slow reaction time. Ayres and Sonandré (2002) reported strong correlations with the PRCA ($r = .84$) and STAI ($r = .86$) as well as good test–retest reliability ($r = .94$). Free response scaling such as think aloud protocols (Booth-Butterfield & Booth-Butterfield, 1990; Daly, Vangelisti, Neel, & Cavanaugh, 1989; Daly et al., 1995), open-ended verbalization of speaking concerns (Daly, Vangelisti, Neel, et al., 1989), and speech recall

Table 1 Self-Report Scales for the Assessment of Cognitive State and Trait PSA

Scale name	Description
Audience Anxiousness (AA)	A 12-item measure of trait anxiety (5-point Likert) that produces adequate internal consistency ($\alpha > .88$; Leary, 1983c). Construct and criterion validity are demonstrated (Leary & Kowalski, 1993).
Communication Anxiety Inventory (CAI)	The CAI measures both trait PSA (21 items) and state PSA (20 items; Booth-Butterfield & Gould, 1986). Respondents indicate their level of agreement with statements on 4-point scales (1 = not at all; 4 = very much so). Each scale is unidimensional, and researchers should expect high reliability ($\alpha > .90$).
Cognitively Experienced Speech Anxiety (CESA)	Originally developed by Beatty, Kruger, and Springhorn (1976), the CESA employs 11 items (5-point Likert) that load on one of three factors (prior apprehension, avoidance, tension; $\alpha = .70 - .80$). It is a trait measure of PSA and correlates well with other trait measures (e.g., PRCA; Daly, 1978).
Personal Report of Communication Apprehension (PRCA)	The PRCA is a 24-item scale (5-point Likert) that measures CA in four contexts: public speaking, dyadic, group, and meeting CA. The six-item public speaking subscale generally produces reliability estimates in the range of .80-.85; construct, concurrent, discriminant, and predictive validity have been demonstrated (Levine & McCroskey, 1990).
Personal Report of Confidence as a Speaker (PRCS)	Paul's (1966) 30-item PRCS has participants think of their "feelings of confidence" in relation to their "most recent speech" (true or false). Internal consistency is generally high ($\alpha > .90$). The measure correlates with related measures (Daly, 1978; Leary, 1991). Construct validity needs to be demonstrated.
Personal Report of Public Speaking Anxiety (PRPSA)	The PRPSA is a unidimensional, 34-item measure of trait PSA that generates high reliability estimates ($\alpha > .90$); 10 day test-retest reliability = .84 (McCroskey, 1970). McCroskey recommends this measure be used in studies of PSA over the use of the PRCA. A 15-item version is also available (Hensley & Batty, 1974).
State-Trait Anxiety Inventory (STAI)	The STAI consists of two 20 item scales (1 = not at all, 4 = very much so), one for state anxiety (SAI) and one for trait anxiety (TAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Each are generally reliable (Barns, Harp, & Jung, 2002; α : $M = .91$, $SD = .05$; test-retest: $M = .70$, $SD = .20$). A six-item version of the SAI correlates highly ($r = .93$) with the SAI (Berg, Shapiro, Chambless, & Ahrens, 1998).
State Communication Apprehension Measure (SCAM)	Items (McCroskey & Richmond, 1982) are similar to those found on the SAI, and McCroskey (1997a) suggests it as an alternative to the SAI. Alpha values should be above .85 (McCroskey, 1984b).

(Daly, Vangelisti, & Lawrence, 1989) have also been used to map the specific positive and negative cognitions generated when preparing and presenting speeches. In addition, several self-report scales have been developed from this open ended research (e.g., Ayres, 1986; see Table 2).

Table 2 Self-Report Scales for the Assessment of Negative and Positive Cognitions for Public Speaking

Scale name	Description
Appraisal of Social Concerns Scale (ASCS)	The 20 items on the ASCS exemplify concerns of public speakers (e.g., appearing stupid); thus, it most appropriately measures cognitive state PSA during anticipation (Behnke & Sawyer, 1999). Schultz et al. (2006), however, reported psychometric properties of the scale may be dependent on certain sample characteristics (e.g., clinical vs. nonclinical).
Attributional Style Questionnaire (ASQ)	The ASQ consists of 12 hypothetical events, six positive (e.g., you become very rich) and six negative (e.g., you given an important talk in front of a group and the audience reacts negatively). Participants are asked to determine how attributable the event is to internal, stable, and global causes on three, 7-point scales (1 = totally due to other people or circumstances, 7 = totally due to me; Peterson et al., 1982). Scores on the ASQ are related to actual attributions people make. Using the scale in the context of PSA, Kopecky et al. (2004) modified the situations "to reflect academic events" (p. 283) and report alpha of .70 for the total scale.
Cognitive Public Speaking Orientation (COM)	The performance and communication orientations are each measured by eight items (Motley, 1990). Booth-Butterfield and Booth-Butterfield (1993) did not confirm the original factor structure, report low scale reliabilities ($< .60$), and found performance orientation was not correlated with CA or self-consciousness.
Perceptions of Speaking Ability (PSA)	Ayres (1986) developed the PSA "to measure speakers' perceptions of their ability vis a vis audience members' expectations" (p. 279). It is completed directly prior to a speech. Twelve items ($\alpha = .89$) loaded on one of three factors—delivery (five items), invention (four items), and credibility (three items).
Self Statements during Public Speaking (SSPS)	Hofmann and DiBartolo (2000) developed this 10-item measure to assess both negative (five items; $\alpha = .86$) and positive (five items; $\alpha = .75$) thoughts about public speaking. It is most accurately classified as a trait measure of positive and negative thinking. Although it correlates well with similar measures (Hofmann & DiBartolo, 2000), it does not correlate with an open-ended measure (Heinrichs & Hofmann, 2005).
Social Interaction Self-Statements Test (SISST)	The SISST has respondents indicate how often a particular positive (15 items) or negative (15 items) thought occurred during a speech (Beidel, Turner, & Dancu, 1985; Beidel, Turner, Jacob, & Cooley, 1989). It has performed in line with theoretical expectations and reliability is generally high ($> .85$) in PSA research (Smith, Sawyer, & Behnke, 2005). McCullough et al. (2006) computed a state of mind (SOM) ratio by dividing the number of positive thoughts by the sum of positive and negative thoughts – $r = -.56$ between SOM and SAI, $r = -.51$ between SOM and gastrointestinal sensations.
Speech Anxiety Thoughts Inventory (SATI)	The scale has 23 items and two factors—Prediction of Poor Performance (PPP), Fear of Negative Evaluation by Audience (FNEA). Cho et al. (2004) report alpha coefficients of .95, .94, and .91, and four-week test–retest reliabilities of .71, .73, and .64 for the total, PPP, and FNEA scales, respectively. It is correlated with similar measures (e.g., PRCS $r = .52-.78$, ASCS $r = .74-.85$) and is sensitive to treatment.
Thoughts Questionnaire (TQ)	The TQ assesses how often speakers have ruminative thoughts during the week following a speech (Edwards, Rapee, & Franklin, 2003). The total scale contains 29 items and assesses positive (11 items), negative (16 items), and other thoughts. Reliabilities range from .79 to .96 (Abbott & Rapee, 2004; S. L. Edwards et al., 2003; Rapee & Abbott, 2007). Validity has not been demonstrated.

Behaviors of PSA. Behavioral speech anxiety (BSA) is defined as “the degree of assumed speaker anxiety perceived by observers on the basis of manifest speaker behavior” (Mulac & Sherman, 1975, p. 176). When audience members detect BSA, the speaker’s credibility and potential impact suffer (Mulac & Wiemann, 1997). Even though textbooks (e.g., Beebe & Beebe, 2003; Lucas, 2005; Richmond & Hickson, 2001) and popular treatments of PSA (Kelly, 1997) focus heavily on appropriate (and inappropriate) speaking behaviors and several standard scales exist to measure BSA (see Table 3), observations of BSA (e.g., trembling) remain underutilized in PSA research (Lewin, McNeil, & Lipson, 1996). At least two explanations can be posited for this. First, BSA is often conflated with speech quality, a more general term that removes the focus of research and remediation from anxiety. Second, using a BSA measure comes with a decision about who assesses BSA—the speaker, the audience, or a trained coder. Although observer BSA ratings correlated with speaker self-reports (Daly, Vangelisti, & Lawrence, 1989), speaker and audience BSA ratings did not correlate highly (Rodebaugh & Chambless, 2002; Sawyer & Behnke, 1996). The discrepancy between BSA ratings of speakers and observers is most pronounced for high trait anxious speakers who readily rate their own performance more harshly than trained coders (Rapee & Lim, 1992); this is true even though high and low trait anxious speakers do not differ when assessing the BSA of other speakers (Rapee & Hayman, 1996). Consequently, the assessment of BSA is dependent on the genesis of measurement, a problem not encountered when assessing physiological or cognitive PSA.

Table 3 Measures of Behavioral State PSA

Scale Name	Description
Anxiety-Enthusiasm Behavior Scale (AEBS)	A 26 item checklist of anxious behaviors displayed while speaking (e.g., stiff and motionless, restless), the AEBS has shown high internal consistency ($\alpha = .95$) and intercoder reliability ($r = .82$; Pörhölä, 1997).
Behavioral Assessment of Speech Anxiety (BASA)	The BASA is an 18-item checklist used by trained coders viewing one-minute segments of videotaped speeches. The severity and occurrence of each behavior is rated on a 10-point scale (Mulac & Wiemann, 1997, p. 237). Mulac and Sherman (1974) originally reported four factors (rigidity, inhibition, disfluency, agitation), but this structure is not always found. High intercoder reliability is expected ($r > .86$).
Checklist of Appropriate Speaking Behaviors (CASB)	While the BASA focuses on negative behaviors, the CASB includes 19 items that measure appropriate speaking behaviors (Marshall et al., 1982). A single score is computed “which [reflects the] number of times observers checked the presence of any one of the behaviors in the 30-second observation periods” (p. 151). Intercoder reliability is comparable to the AEBS and BASA ($r = .83$).
Stoelting Steadiness Tester (SST)	The SST measures hand steadiness after speech confrontation (Behnke, Beatty, & Kitchens, 1978). The apparatus consists of “seven feet of $\frac{1}{4}$ inch copper tubing bent in three dimensions” (Gray, Sustare, & Thompson, 1953, p. 57), across which participants direct a brass ring. Total contact between the ring and tubing is used to calculate a steadiness score.

Summary

Overall, PSA can be conceptualized as a trait-like disposition as well as a fleeting and speech specific reaction exhibited as physiological, cognitive, and behavioral responding. Various operationalizations for each system have been proposed, and the most common are described above. The two conceptual distinctions made above can be crossed to form a 2×3 categorization of PSA (see Table 4). First introduced by Clevenger (1984) to explain the nature of general social anxiety, this classification can be validly applied here since PSA is a subtype of social anxiety. Certainly, current research recognizes this categorization, and several published studies have made strides in outlining the interrelationships among these components.

Components of PSA and their Interrelationships

Early research explored the interrelationships among PSA components in an effort to assess the validity of using measures of different systems to assess PSA. In an early review, Clevenger (1959) lamented that although research reported high reliability for physiological, cognitive, and behavioral measures, these measures were not meaningfully correlated. Since his publication, the concern about whether these systems are related has been a major thread in the PSA literature.

Early Research Addressing the Concern

The state–trait distinction helped to partially assuage the concern highlighted by Clevenger. For instance, research by Porter (1974) recognizing the state–trait distinction found moderate correlations ($r = .36-.56$) between speaker HR and cognitive state PSA at the various speaking milestones but correlations near zero between HR and a measure of general anxiety. Correlations of similar magnitude are generally reported for behavioral and cognitive state PSA (e.g., Behnke, Sawyer, & King, 1987; $r = .36$; see also Freeman, Sawyer, & Behnke, 1997). Other research has

Table 4 Six-Way Classification for the Conceptualization and Measurement of PSA

	State–trait distinction	
	State	Trait
Three-Systems		
Distinction		
Physiological	Physiological arousal (e.g., heart rate) during one or more speaking milestones	Physiological arousability and/or psychological reactivity to a public speaking stressor
Cognitive	Psychological anxiety during one or more speaking milestones	Feelings about public speaking in general and/or general feelings about specific time points of speeches
Behavioral	Behavioral manifestations of anxiety during one or more speaking milestones	Typical behavioral responses to most public speaking situations

addressed Clevenger's concern by developing causal models explaining how the different PSA components are related. The first model to appear in the PSA literature was the cognitive-physiological model (CPM; Behnke & Beatty, 1981) which recognizes that all speakers experience physiological arousal when faced with a speech; thus, differences in state PSA responses cannot be attributed solely to physiology. Although physiological arousal is important, the CPM posits cognitive labeling of arousal determines the state PSA response.

Behnke and Beatty (1981) asked 32 student volunteers to present a short impromptu speech during a normal class period. The PRCA served as the measure of trait PSA, state PSA was operationalized with the SAI, and speaker HR during confrontation (while controlling for prespeech HR) was the measure of physiological arousal. In support of the CPM, a moderate, positive correlation was reported between trait and state PSA scores ($r = .679$) and between HR and state PSA ($r = .666$); trait PSA and HR were found to be statistically independent ($r = .136$). Other research has verified these empirical relationships (for review see McCroskey, 1997a). Croft et al. (2004), although recognizing that Behnke and Beatty's results are consistent with the CPM, claim that first order correlations do not empirically distinguish between an independent model and an interaction model (i.e., the CPM). Croft et al. found support for the CPM insofar as the interaction between cognition and physiological arousal better predicted state PSA than these variables in isolation. Moreover, their stepwise regression analysis found that the interaction terms including both physiological arousal and cognition were the only significant predictors of state PSA; individual cognitive and physiological variables were unable to explain additional variance.

Since Behnke and Beatty proposed the CPM, research has continued to recognize the importance of theory when developing PSA research. This current research primarily places state PSA responding as the dependent variable where state PSA responding is operationalized as either (a) the physiological, cognitive, or behavioral responses of speakers at a particular characteristic event or (b) the physiological, cognitive, or behavioral response pattern exhibited across the time course of a speech.

State PSA Responding at One or More Characteristic Events

When predicting state PSA responses at a particular event, two general classes of variables are used: (1) cognitive and physiological traits and (2) several transitory causes.

Cognitive traits. The most common variable used in studies predicting state PSA is cognitive trait PSA (Mladenka, Sawyer, & Behnke, 1998). Cognitive trait PSA is a general predisposition to feel anxious about public speaking and is most commonly conceptualized as communication apprehension (CA). Although the original conceptualization of CA was intimately tied to research on stage fright (McCroskey, 1982), CA is currently defined more broadly (McCroskey, 1977); the current measure of CA assesses four different communicative contexts (see Table 1). Research on PSA

has used a speaker's total CA score as well as the public speaking subscale to operationally define trait PSA. Current thinking recognizes, however, that individuals who are anxious about public speaking may not report heightened feelings of anxiety in other contexts (Richmond & McCroskey, 1985); thus, McCroskey recommends using the Personal Report of Public Speaking Anxiety (PRPSA) as opposed to the PRCA to define trait PSA. At the very least, researchers should employ only the public speaking subscale of the PRCA if their research is concerned with cognitive trait PSA; if the concern is with general CA, then the full PRCA should be employed. In addition, since trait PSA can be segmented in a manner similar to state responses (Behnke & Sawyer, 1998), researchers should make a theoretical argument for employing trait measures of PSA to assess the general tendency to react negatively to public speaking (medium-band trait PSA) and/or the general tendency to react negatively to one or more speaking events (narrow-band trait PSA).

The earliest theoretical account explaining the origin of trait PSA proposed it was caused by speakers lacking requisite skills (e.g., Henrikson, 1943; Knower, 1938). As Phillips (1991) explains, speaking skills are generally acquired from one's social network; thus, by the time a student enters a formal, college public speaking classroom, their "social errors [have] become habits" (p. 52). These habits, in turn, cause some speakers to ruminate on their lack of ability prior to speaking and, therefore, inhibit appropriate responding (Greene & Sparks, 1983a,b). In stark opposition, the most recent account argues that traits are inborn, genetic predispositions (Beatty, McCroskey, & Heisel, 1998; Beatty, McCroskey, & Valencic, 2001). This explanation suggests that cognitive trait PSA is immutable and not open for remediation through efforts to train skills (Beatty & Valencic, 2000); although not all see the genetic link as negating training efforts (Kelly & Keaten, 2000).

The final account suggests cognitive trait PSA is "a summation of state experiences" (Beatty & Behnke, 1980, p. 320; see also Beatty, Behnke, & McCallum, 1978; McCroskey & Beatty, 1984). That is, cognitive trait PSA is learned, primarily from negative experiences in the past (McCroskey, 1984a). These negative experiences seem to manifest into a strong tendency for high trait PSAs to think negatively; negative thoughts intrude on the ability to attend to aspects of the speaking situation (Addison, Clay, Xie, Sawyer, & Behnke, 2003; Ayres, 1992). Although all speakers think more negatively than positively (Booth-Butterfield & Booth-Butterfield, 1990), high cognitive trait PSA speakers have significantly more negative and self-focused thoughts than low PSA speakers (Ayres, 1988; Study 1; Booth-Butterfield, 1989; Daly, Vangelisti, & Lawrence, 1989) and report being more concerned about their performance and about being evaluated (Daly, Vangelisti, Neel, et al., 1989). The negative thinking exhibited by high cognitive trait PSA speakers can reduce speaking competence (Rubin, Rubin, & Jordan, 1997), impact the interpretation of feedback (Booth-Butterfield, 1989), and lower the potential impact of transitory causes (e.g., audience) since high trait PSAs are typically highly aroused even in low intensity situations (Beatty & Behnke, 1991). There is also some research suggesting that low cognitive trait PSA speakers "may actually enjoy exhibiting their talents" (McKinney, Gatchel, &

Paulus, 1983, p. 74) and are more self-assured about their speaking abilities (Ayres & Heuett, 1997; Thomas, Tymon, & Thomas, 1994).

In two studies, Sawyer and Behnke (1997) found that speakers high in cognitive trait PSA tended to dissociate emotional memories shortly after speaking and this dissociation continued over time. Thus, these speakers tended to hold on to their negative views of self as public speaker, views that are difficult, but not impossible, to change (Beatty et al., 1998).³ The learning theory from which Behnke, Sawyer, and their colleagues draw is Gray's neuropsychological model (Gray & McNaughton, 2000) which posits several neural subsystems that work together toward identifying and responding to threatening and rewarding stimuli. Specifically, a central comparator continually monitors the environment for rewards and punishment. When detected, one of three systems—fight-flight-freeze system (FFFS), behavioral approach system (BAS), or behavioral inhibition system (BIS)—is engaged. The BIS has been most readily explored in PSA research primarily because public speaking situations meet the requirements for stimuli that trigger the BIS (i.e., signals of punishment and nonreward, novel stimuli, and innate fear stimuli). Behnke and Sawyer (2001b) suggest that “repeated sensitization of the BIS will eventually cause the fear circuit to trigger independently from conscious awareness” (p. 77). More recently, McCullough, Russell, Behnke, Sawyer, and Witt (2006) found high correlations ($|r| = .51-.56$) among speaker body sensations, state of mind, and anticipatory anxiety suggesting that some speakers have “an inability to actively control or divert their attention away from arousal” (p. 106). Thus, the neuropsychological model suggests that cognitive traits like CA and its public speaking subcomponent are psychological indicants of underlying physiological and/or biological mechanisms.

Physiological traits. Although cognitive traits are important predictors of state PSA, Mladenka, Sawyer, and Behnke (1998) stressed the importance of assessing other speaker anxiety traits. They proposed anxiety sensitivity (AS)—an individual's fear of fear—as an important, independent predictor of state PSA. Using data gathered from undergraduates presenting five-minute informative speeches to around 20 classmates and an instructor, their model predicting confrontation anxiety found 23.74% of the unique variance attributable to AS, slightly more than that attributed to trait CA (19.09%). Although the bivariate relationship between AS and trait PSA (as measured by the PRCA) was not reported, the combined effect of AS and trait PSA was minimal (0.27%) suggesting that AS “taps an aspect of [state PSA at confrontation] for which trait anxiety cannot account” (p. 425). This initial research has led Behnke, Sawyer and their colleagues to uncover a variety of physiological traits that can help explain state PSA responses.

Some of these traits are measured directly by assessing the predisposition to exhibit physiological reactivity during stress, a concept called arousability (Gray, 1964). Adapted from Levis and Smith (1987), arousability for PSA was operationalized using a balloon burst test (Behnke & Sawyer, 2001b; Finn, Sawyer, & Behnke, 2009). Specifically, prospective speakers were asked to sit quietly for 10 minutes while blindfolded after which they were handed a balloon and told to inflate it; the researcher

then unexpectedly popped the balloon and recorded the participant's HR during the next 30 seconds. Although the conceptual distinction between trait anxiety and arousability is not universally accepted, Finn, Sawyer, and Behnke (2009) found the two uncorrelated ($r = .06$).

In addition to arousability, Behnke and Sawyer (2001b) proposed anticipatory activation (AA) as an important physiological trait. Defined as "the priming of anxiety circuits . . . prior to confrontation with a stimulus" (p. 77), Behnke and Sawyer (2001b) operationalized AA as the average HR five minutes prior to speaking. Anticipatory activation is strongly related to arousability ($r = .57$), and Behnke and Sawyer (2001b) reported that arousability and AA account for a combined 59% of the variance in a speaker's confrontation HR. In addition, arousability and cognitive trait PSA accounted for nearly three-quarters of the variance in the tendency to panic during a speech (Finn, Sawyer, & Behnke, 2009).

Other physiological traits are measured through one or more self-report scales (see Table 5). Strelau (1994) proposed that a whole host of temperament dimensions can be "interpreted in terms of the concept of arousability" (p. 131) and that "individual differences in physiological and/or biochemical mechanisms . . . explain the individual differences in temperament traits" (p. 135). In other words, individual differences in psychological reactivity (measured using self-report methods) are merely proxies for physiological traits (for examples of PSA research using measures of psychological reactivity, see Clay, Fisher, Xie, Sawyer, & Behnke, 2005; Horvath, Moss, Xie, Sawyer, & Behnke, 2004; Kopecky, Sawyer, & Behnke, 2004; Winters et al., 2007).

Transitory causes. In addition to cognitive traits and reactivity, speakers also experience heightened anxiety because of several situational factors. Extending the research of Buss (1980) and McCroskey (1984a), Beatty (1988c) proposed eight situational factors: novelty, formality, subordinate status, conspicuousness, unfamiliarity, dissimilarity and degree of attention from others, degree of evaluation, and prior history. Although acknowledging the possibility of true situational variables (Beatty, Balfantz, & Kuwabara, 1989), the general conclusion of this research is that most of these variables operate like traits (Beatty, 1988c; Beatty et al., 1978; Beatty & Friedland, 1990). This conclusion is, however, questionable for several reasons. First, situational variables were operationalized as self-report scales; participants were asked their perceptions of certain aspects of speaking situations they encountered in speaking courses. Thus, these studies seem "biased in the direction of finding individual predispositions to be more important than situational factors" (Ayres, 1990, p. 285). Second, this research only used one outcome variable, cognitive state PSA. Consequently, we know little about the influence of situational factors on other PSA outcomes.

Most research exploring situational influences on state PSA has focused on audience characteristics, which is no surprise since audience presence is a central feature of the public speaking environment. Speakers exhibit more cognitive, physiological, and behavioral anxiety when exposed to audiences of greater size and expertise (Bode & Brutten, 1963; Hillmert, Christenfeld, & Kulik, 2002; Long, Lynch, Machiran, Thomas,

Table 5 Self-Report Measures of Psychological Reactivity as Proxies for Physiological Trait PSA

Scale name	Description
Affect Intensity Measure (AIM)	The AIM is a 40-item scale measuring the “general level of reactivity to emotional experiences” (Clay et al., 2005, p. 99). AI is related to sensitization and sensitivity to punishment. Although Clay et al. report a sufficient internal consistency coefficient for the total scale ($\alpha = .87$), Bryant, Yarnold, and Grimm (1996) provide evidence of three factors. A 20-item version exists (Geuens & De Pelsmacker, 2002).
Anxiety Sensitivity Index (ASI)	This 16-item scale (0 = very little, 4 = very much) is considered a measure of beliefs regarding the impacts of anxiety and not anxiety per se (Reiss, Peterson, Gurskey, & McNally, 1986). Speakers high in AS report higher levels of bodily sensations during speech anticipation (Addison et al., 2004); however no PSA research reports the relationship between AS and more traditional physiological measures.
BIS/BAS Scales	Although this 20-item scale (4-point Likert) was created to measure Gray’s BIS and BAS systems, an initial factor analysis produced one factor for BIS and three for BAS responding, each of which was related to other measures as expected (Carver & White, 1994). This factor structure has not been replicated in subsequent research (Poythress, Skeem, Lilienfeld, Douglas, & Edens, 2009), and the BIS scale is not related to SC or HR to an impromptu speaking task (Hofmann & Kim, 2006).
Fear of Negative Evaluation (FNE)	Horvath et al. (2004) used the FNE (30-items, true/false) to assess a speaker’s sensitivity to social evaluation. The FNE generally produces high reliability ($\alpha > .80$) and correlates highly with similar measures (Leary, 1991). A 12-item short form correlates highly ($r = .96$) with the FNE (Leary, 1983a).
Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ)	The SPSRQ consists of 48 items (yes-no) purported to tap Gray’s dimensions of anxiety and impulsivity (Torrubia, Avila, Molto, & Caseras, 2001). Twenty-four items constitute each subscale: sensitivity to punishment (SP), sensitivity to reward (SR). Sensitivity to punishment is correlated with the STAI ($r = .68$ for males; $r = .59$ for females), and SR is correlated with impulsiveness ($r = .41$). Each is positively correlated with Eysenck’s Neuroticism scale (SP $r = .62$, SR $r = .33$); the SPS is negatively correlated with extraversion ($r = -.53$), whereas the SRS is positively correlated ($r = .41$). The SRS is additionally related to individual psychoticism ($r = .24$). Clay et al. (2005) report a KR20 internal consistency estimate of .83 for SP in the context of PSA and that SP is correlated with sensitization ($r = .75$) and affect intensity ($r = .48$).

& Malinow, 1982; McKinney et al., 1983; Seta, Crisson, Seta, & Wang, 1989, Experiment 1; Shearn, Bergman, Hill, Abel, & Hinds, 1992) as well as when audiences responded negatively (Bassett, Behnke, Carlile, & Rogers, 1973; Hillmert et al., 2002; Pertaub, Slater, & Barker, 2002) or in a neutral manner (Lepore, 1995; Lepore, Allen, & Evans, 1993; MacIntyre, Thivierge, & MacDonald, 1997) during the speech, compared to audiences who responded in a positive manner (for an early review see Gardiner, 1971). In a more comprehensive study, Ayres (1990) manipulated five characteristics of

the audience (size, familiarity, similarity, status, and behavior) and assessed their independent and interactive effects on cognitive state PSA. After reading a description of a public speaking situation that included one aspect of the putative audience (e.g., size: deliver speech to a large audience [viz. 100 people]/small audience [viz. 5 people]), students completed the state CAI in reference to how anxious they would feel in that situation.

Each audience characteristic exhibited an independent effect on cognitive state PSA. Although the average effect size was small ($\omega^2 = .04$), results are consistent with other research. Moreover, as estimated by Harris et al. (2006) situational factors can explain up to 20% of the variance in cognitive state PSA responding. Consequently, it is not constructive to simply ignore them. In addition, each main effect in Ayres's study was qualified by several two- and three-way as well as one four-way interaction. The complexity of Ayres's findings has been replicated by others (Ayres, 1986; Ayres & Raftis, 1992; MacIntyre & Thivierge, 1995; Moscovitch & Hofmann, 2006), but only with cognitive PSA. Thus, future research needs to explore when and why audience and other characteristics interact and when they have independent effects on a variety of state responses.

Research assessing other transitory causes has found graded speeches produce more cognitive PSA than ungraded speeches (Craighead & Craighead, 1981), which mirrors findings that evaluative speaking contexts are more arousing than nonevaluative ones (Ayres, 1986; Ayres & Raftis, 1992; Gramer & Saria, 2007; MacIntyre et al., 1997; Smith, Nealey, Kircher, & Limon, 1997). Since the majority of public speaking classes require assigning grades, Booth-Butterfield (1988) assessed the impact of a speech that (assumedly) counted for half of the final course grade versus a speech that (assumedly) counted for a small portion of the final grade (5%). Contrary to intuition, students asked to imagine the high impact speech reported less anxiety than those asked to imagine the low impact speech. Although Booth-Butterfield explained that increasing the importance of a speech serves as motivation to speak well, caution is advised since other research reports inducing motivation to perform well can increase felt anxiety (Smith et al., 1997). Finally, the manner of delivery can also impact PSA. Witt and Behnke (2006) found that students reported lower trait (Study 1) and state (Study 2) PSA for manuscript-based speeches than extemporaneous or impromptu speeches; extemporaneous speeches elicited more trait and state PSA than impromptu speeches. Speech type may not, however, negatively influence PSA in all three response systems (Ayres & Raftis, 1992). Indeed, Tardy and Allen (1998) report impromptu speeches produce less physiological arousal than extemporaneous ones.

PSA Response Patterns

Research that explores the anxiety responses of speakers over time shows patterns differ across response systems and patterns differ due to speaker demographics and traits.

Patterns for the three systems. Similar to responses to other threatening situations (Knight & Borden, 1979), speaker HR increases as the time for giving a speech approaches and quickly dissipates after performance (Behnke & Carlile, 1971). This inverted v-shaped pattern (see Figure 1) has been replicated with HR (Pörhölä, 1997; Porter, 1974; Porter & Burns, 1973) and other physiological indices (e.g., BP, salivary cortisol; Davidson et al., 2000; Egloff, Wilhelm, Neubauer, Mauss, & Gross, 2002; Roberts et al., 2004). The pattern of physiological arousal is, however, different when speakers are asked to self report their physiological symptoms (Witt et al., 2006; see Figure 1). Research reveals yet another pattern for cognitive state and trait PSA. As measured by the STAI, both cognitive state (Sawyer & Behnke, 1999) and trait (Behnke & Sawyer, 1998) PSA exhibit decreasing monotonic functions over time. Moreover, three milestones of anticipatory anxiety exist for both state and trait PSA. Specifically, speakers reported the highest cognitive state and trait PSA just prior to the actual speech; speakers reported more anxiety when the speech is announced than during preparation (Behnke & Sawyer, 1999, 2000; see Figure 2). Anticipatory events have not been charted for the other two response systems.

Differences in response pattern. In addition to differences in state PSA responding based on response systems and measurement, there are also stable individual differences in state PSA responding. Some differences are a matter of response degree. For instance, although females tend to exhibit greater cognitive state PSA at all milestones (Behnke & Sawyer, 2000; Gilkinson, 1943; Jensen, 1976), the pattern of cognitive state PSA responding is similar for both males and females (monotonic decreasing). Porter (1974) reported a similar difference for HR patterns.

Other differences are a matter of response direction. The first study to detect directional differences in physiological responding (Booth-Butterfield, 1987) showed that compared to low trait PSA speakers, the HR curve of those with high trait PSA “more closely [followed] the original quadratic curve of classic speech anxiety research” (p. 395). Low trait PSA speakers tended to show peaked HR at confrontation then return to baseline levels after 30 seconds. Subsequent research

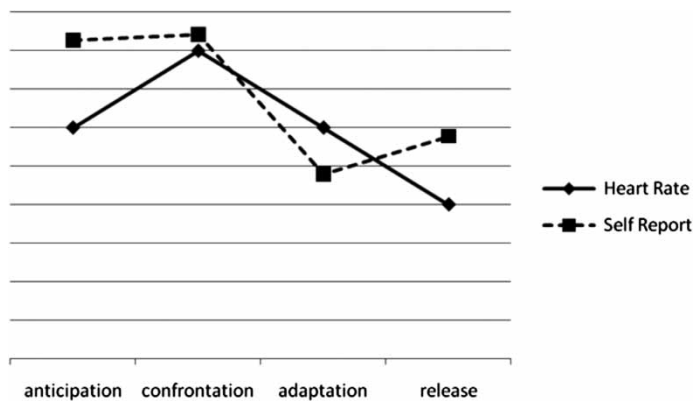


Figure 1. Physiological state PSA for characteristic speaking events.

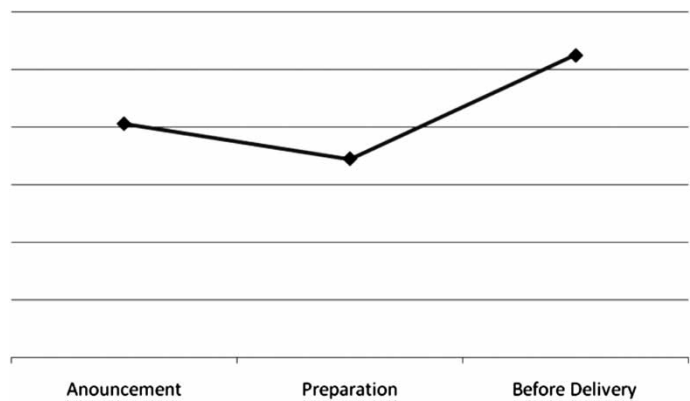


Figure 2. Cognitive state and trait PSA for anticipatory milestones.

utilizing measures of cognitive state PSA proposed “two state anxiety patterns, one characterized by habituation, the other a function of sensitization” (Behnke & Sawyer, 2001a, p. 86). Habituation refers to a pattern of psychological state anxiety whereby the individual anticipates a high level of threat; when that threat expectation is not met, psychological anxiety decreases (see Figure 3). Sensitization refers to a pattern of psychological state anxiety whereby threat is greater than anticipated causing an increase in felt anxiety from anticipation to confrontation (see Figure 3). Sawyer and Behnke (2002) reported strong negative correlations between habituation and sensitization using both physiological equipment ($r = -.83$) and self-report methodology ($r = -.71$; see also Roberts et al., 2005). Other research has found the likelihood of exhibiting a pattern of sensitization is greater for individuals with higher anxiety sensitivity (Behnke & Sawyer, 2001a; Study 2) and individuals with high cognitive trait PSA (Witt et al., 2006).

In addition to finding two characteristic HR patterns, Booth-Butterfield (1987) also found an “extremely large amount of individual difference and variation in heart rate across time” (p. 395). Subsequent research using data gathered from 47 Finnish

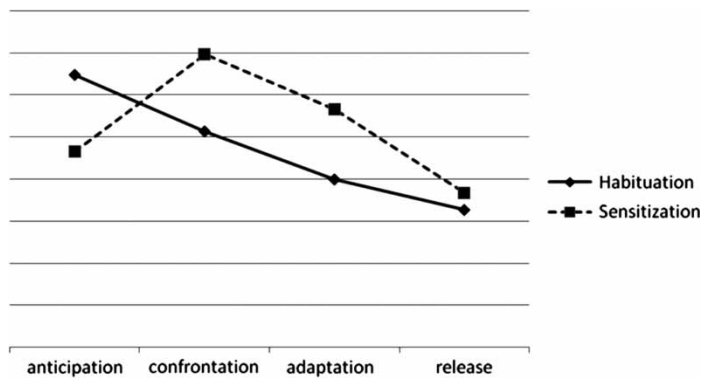


Figure 3. Pattern of habituation and sensitization.

undergraduate students presenting speeches to approximately 10 classmates and an instructor (Pörhölä, 2002) reported four arousal styles: (a) the confrontation style replicated past HR pattern research, (b) the inflexible style was marked by increased HR at confrontation that remained high throughout the speech, (c) the insensitive style was marked by a relatively low HR throughout the presentation, (d) the average style was marked by an average HR and average confrontation and adaptation responses. High trait PSAs were more likely to exhibit the confrontation and inflexible styles, each of which was related to poorer performance. Although trait PSA levels were moderate for the insensitive style, this style was only exhibited by experienced speakers.

Summary

Together, cognitive and physiological traits predict much of the variance in state PSA responses at various milestones (see Finn, Sawyer, & Behnke, 2009). These traits do not, however, explain the entire PSA experience (Bippus & Daly, 1999; Harris et al., 2006). By definition, a speech represents a particular situation composed of characteristic parts. Public speaking is governed by rules and guidelines, some implicit and others explicit, that are more or less manifest in any given speaking situation and that have the potential to generate anxiety in most speakers (Daly & Buss, 1984). Currently, most thinking conceptualizes PSA as both a state and a trait, and that these two components interact in ways that future research should continue to investigate. This research is generally framed by one or more theoretical perspectives that explain the underlying mechanisms responsible for the generation of states and traits. These mechanisms serve as foundations for treatment.

Treatment of PSA

The treatment of PSA has been a longstanding concern of scholars and educators (Hayworth, 1939; Robinson, 1959). Drawing primarily from anecdotal classroom experiences, early publications focused on teaching suggestions and classroom activities as well as general guidelines for the basic speaking course (e.g., Bryngelson, 1942; Henrikson, 1943; Menchhofer, 1938). Since then, several techniques have been formalized and developed, the most popular of which (systematic desensitization [SD], cognitive modification [CM], and skills training [ST]) were adapted from psychotherapy and, thus, were primarily designed to provide treatment to high trait anxious speakers (Duff, Levine, Beatty, Woolbright, & Park, 2007). Each technique assumes a different proximal cause and seeks to focus treatment on that cause. Whereas SD assumes PSA is the result of a tendency to become hyperaroused, CM assumes problematic cognitions are the root of PSA; ST assumes that PSA stems from a speaker's inadequate skill repertoire.

Systematic Desensitization

Systematic desensitization (SD) attempts to alter the negative and unconscious association between some aversive stimulus (e.g., public speaking) and anxiety. The procedure begins by teaching relaxation methods (e.g., autogenics, meditation, progressive muscle relaxation); once relaxed, participants are asked to imagine a progressive series of public speaking situations. These situations are typically introduced in hierarchical order from least to most likely to provoke an anxious response.⁴ As soon as the participant is able to relax in one situation, he or she is introduced to the next one in the hierarchy (for review see Friedrich, Goss, Cunconan, & Lane, 1997). Thus, as a treatment for PSA, SD focuses solely on attempting to reduce reactivity by graduated exposure to speaking situations of greater potential stimulation. For example, Paul's (1966) hierarchy begins by having the participant imagine lying in his or her bed just before going to sleep and ends by having him or her imagine presenting a speech before an audience. Between these two extremes are iterative steps (e.g., reading about speeches alone; watching a speech). Although initial SD research assumed it worked by helping individuals replace problematic conditioned responses with a more pleasant response—a process called counterconditioning (Wolpe, 1958)—current thinking suggests that SD works simply because of repeated exposure to an arousing situation (Finn, Sawyer, & Schrod, 2009).

Systematic desensitization is successful in reducing PSA in the short-term and over time (McCroskey, 1972; Paul, 1966) and can be successfully administered to undergraduate speech students by educators with only minimal training (McCroskey et al., 1970). Research suggests starting PSA treatment with SD is the best option for those with high trait PSA (Ayres et al., 1993; Whitworth & Cochran, 1996). Thus, instructors should consider identifying high trait PSA students at the beginning of the semester and providing them with SD training early. Other research supports the utility of self-administering SD with no significant decrement in effectiveness (Marshall, Presse, & Andrews, 1976). Caution should be taken, however, in choosing appropriate trainers and an appropriate program (Barrick, 1971). Especially since the process of identifying high trait PSAs presents the possibility of stigmatizing or ostracizing students, offering SD as a self-administered option to reduce PSA may be preferred.

Cognitive Modification

The assumption underlying cognitive modification (CM) is that PSA primarily arises from negative or irrational cognitions about public speaking (Allen et al., 1989; Ayres, 1988, Study 2; Hopf & Ayres, 1992). Thus, CM procedures attempt to replace problematic public speaking cognitions with more positive views of public speaking and the self as a public speaker. Although several specific treatments exist, most CM techniques follow three steps (Glogower, Fremouw, & McCroskey, 1978). Individuals begin by (1) discussing specific fears about public speaking including (2) negative self-statements; then, a trained therapist (3) shows how each belief is irrational and introduces a coping statement (e.g., "I can handle this") that can be used while

speaking. Since high trait PSAs are more likely to maintain anxious speaking cognitions (Ayres & Hopf, 1993; McCroskey et al., 1970) and are more affected by negative thinking than low trait PSAs (Vassilopoulos, 2005) some suggest they are more likely to benefit from CM (Ayres & Hopf, 1985). Indeed, research assessing the two most popular CM techniques (COM therapy and visualization) tends to sample only high trait PSA speakers.

COM therapy. Motley's (1997) communication-orientation modification therapy (COM therapy) posits that PSA is caused by an individual's orientation toward public speaking. Individuals who hold a performance-oriented view of public speaking see it as a performance necessitating special skills whereby the audience acts primarily to evaluate. In contrast, communication-oriented speakers see public speaking as more similar to "everyday conversation" (Motley, 1997, p. 380). Communication-orientation modification therapy "concentrates on persuading high PSA individuals to abandon their performance orientation in favor of a communication orientation" (Motley, 1997, p. 380). Although anecdotal evidence (Motley, 1990) and empirical support (Ayres, Hopf, & Peterson, 2000; Motley & Molloy, 1994) have been offered to show COM therapy reduces PSA, Booth-Butterfield and Booth-Butterfield (1993) report nonsignificant correlations between self-reported performance orientation and trait CA drawing into question a main contention of COM therapy that performance orientation mediates the relationship between physiological arousal and state anxiety responses. Other research suggests COM therapy may not be effective in all cultures (Ayres, Hopf, & Nagami, 1999).

Visualization. The basic assumption behind the second CM technique, visualization, is that speakers exhibit anxiety because they cannot visualize success; this inability to visualize success is exhibited by speakers having negative thoughts before, during, and after a putative speech (Ayres, 1988). The standard visualization (SV) technique (Ayres & Hopf, 1985) attempts to reduce these negative thoughts by having participants (1) relax using methods borrowed from SD then (2) visualize success during each of the four speaking milestones (Ayres, Hopf, & Ayres, 1997, pp. 403–404). Students can be led through a standard protocol or develop their own visualization script (Ayres, 1995). Although SV reduces cognitive state PSA and negative thinking, research using behavioral speech anxiety (BSA) was not as conclusive (for review see Ayres et al., 1997) prompting Ayres and Hopf (1992) to add a component to the SV script. Their performance visualization (PV) protocol (Ayres et al., 1997) begins with SV and ends by showing participants a video of a competent speaker and asking them to imagine being that speaker. Data show no difference between SV and PV with respect to cognitive state PSA or negative thinking. PV, however, improves BSA significantly more than does SV (Ayres & Hopf, 1992) and works better for individuals who are better able to produce vivid images of themselves as successful speakers (Ayres, Hopf, & Ayres, 1994). Consequently, Ayres, Hopf, and Edwards (1999) recommend screening students for mental imaging ability prior to PV enrollment. In addition, instructors should use caution when choosing the PV video. Beatty (1988a) reported that showing

a video of a successful speech the class period before a speaker's impending speech not only did not reduce felt anxiety but had the potential to exacerbate that anxiety.

Skills Training

Skills training (ST) refers to techniques targeted toward improving specific speaking behaviors (Kelly, 1997). Skills training programs attempt to teach skills such as organization, vocal and nonverbal delivery, and topic selection (Hopf & Ayres, 1992; Watson, 1983; Whitworth & Cochran, 1996) found to raise concerns among potential speakers (Daly, Vangelisti, Neel, et al., 1989; Daly et al., 1995) using a variety of different procedures (Glaser, 1981). Advocates of ST argue that teaching these skills "reduces the ambiguity of the public speaking situation by providing knowledge and techniques necessary for effective public speaking" (Whitworth & Cochran, 1996, p. 308). The importance of skills to public speaking success is echoed in how we teach the basic speaking course. Behnke and Sawyer (2004) propose that ST taught in the basic course works by helping to habituate speech anxiety; however, ST often does not directly address the anxiety speakers bring with them to the classroom. Based on the fact that basic courses often focus on teaching composite skills necessary for success, some suggest that simply being enrolled in such a class is sufficient to *cause* anxiety (Motley, 1990; Motley & Molloy, 1994). Moreover, research finds that students high in trait CA are more likely to withdraw from public speaking classes (Rubin et al., 1997) suggesting that techniques such as SD may be needed prior to a high CA student enrolling in a public speaking course or ST program (see also McCroskey, Richmond, Berger, & Baldwin, 1983).

Although the most common remediation technique for PSA (Robinson, 1997), ST is the least effective for reducing PSA when compared to SD and CM (Allen, 1989; Allen et al., 1989). The effectiveness of ST techniques is also dependent on levels of trait PSA. For instance, some suggest that simply practicing a speech can help to reduce anxiety (Menzel & Carrell, 1994); however, other research shows that high trait PSA speakers do not effectively utilize their preparation time (Ayres, 1996) calling into question the universal utility of practice (see also Smith & Frymier, 2006). Consequently, some suggest a variety of instructional techniques focused on providing assignment structure that should assist students as they prepare (Daly & Buss, 1984; Daly, Vangelisti, Neel, et al., 1989; Daly et al., 1995). However, a study by Booth-Butterfield (1986) found that task structure was only important for highly apprehensive students. Thus, Booth-Butterfield recommended that instructors generate both structured and unstructured assignment descriptions so that "structure is added to guide those students who need it most (i.e., students with high CA) and yet does not inhibit the performance of nonanxious students" (p. 343). Other suggestions include focusing on modest improvement through several short assignments (Beatty, 1988c) and providing a dedicated work period directly after announcing the speech (Behnke & Sawyer, 2000) and a debriefing period after speech presentation (Witt et al., 2006). The degree to which these recommendations can allay anxiety for speakers of different trait levels of PSA is an empirical question.

Perhaps the most common instructional technique suggested to help reduce PSA is the prescription of a supportive audience (Beatty, 1988c) and/or instructor (Robinson, 1997). Unfortunately, there is little empirical evidence that support works (Ellis, 1995) or how support should be offered (Priem & Solomon, 2009). Two techniques that seem to lend insight into how instructors and classrooms can be “more supportive” are the use of appropriate feedback and the enrollment of highly anxious students in specially designed courses.

Performance feedback. The role of feedback is primarily to “alter or reinforce students’ demonstrated speech skills”⁵ (Book, 1985, p. 14), which can take many forms—simultaneous (e.g., during speaking), delayed (e.g., use of video or audio tape), immediate (e.g., directly after speaking), and written. Although the impact of feedback is dependent on various individual and situational moderators (see Edwards, 1990; King, Young, & Behnke, 2000; Miller, 1964; Smith & King, 2004), research generally shows that negative comments are perceived as more helpful than positive ones, especially when these comments focus on the most needed areas of improvement for a particular speaker (cf. Bostrom, 1963). One way to provide students useful feedback is by videotaping speeches. Although videotaping affords a variety of advantages (Bourhis & Allen, 1998; Deihl, Breen, & Larson, 1970; King & Behnke, 1999; Quigley & Nyquist, 1992), research has focused on how student evaluation of their videotaped speech can help decrease the discrepancy between student and observers anxiety ratings (Rapee & Hayman, 1996; Rodebaugh & Chambless, 2002). This decrease is most prominent for speakers with an initially high degree of negative self-evaluation (Rodebaugh & Rapee, 2006) and when students ignore how they felt during the speech when rating the videotape (Harvey, Clark, Ehlers, & Rapee, 2000; Kim, Lundh, & Harvey, 2002).

Specially designed courses. Although several courses exist around the country (for review see Dwyer, 1995; Foss, 1982), the most well known and tested formalized ST program is the Penn State Reticence Program (Kelly, 1989; Phillips, 1983). The approach used in the PSRP is called rhetoritherapy, which does not assume anxiety is the core cause of speaking problems since reticent individuals may or may not have high trait levels of PSA (Phillips, 1986). Instead, rhetoritherapy assumes that speech dysfunction is the product of one or more rhetorical processes and factors (Page, 1980; Watson, 1983). Even so, research shows rhetoritherapy reduces PSA (Kelly, 1997; Kelly, Duran, & Stewart, 1990; Kelly & Keaten, 1992). Specially designed courses can, thus, provide a “safe-haven” for the highly anxious and serve to help limit the negative impacts of pervasive PSA.

Do Treatments Work?

Reviews of traditional remediation techniques suggest that although PSA can be reduced, the impact of treatment depends on the system in which measurement takes place. Specifically, treatment is most effective when studies employ self-report

measures; treatment is less effective when behavioral measures are used, and treatment effects for physiological measures are the smallest (Allen et al., 1989). In addition, although studies find effects for individual treatments, the main conclusion from meta analytic work (Allen, 1989; Allen et al., 1989) and subsequent studies that attempt to build on this work (e.g., Whitworth & Cochran, 1996) is that a combination of treatment techniques is generally more effective than single treatments. Specifically, the most effective treatment combination begins with SD or CM and ends with ST (Ayres et al., 1993; Hopf & Ayres, 1992); however, research by Dwyer (2000) suggests that the order of remediation align with an individual's personality and not necessarily a standard order.

Although encouraging, a recent study (Duff et al., 2007) questioned the effectiveness of PSA treatments for most public speaking students. In their study, students enrolled in a basic public speaking course were randomly assigned to one of four groups. The first group was assigned a standard SD treatment, whereas the second group was assigned to watch the Ayres et al. (1993) video that combines treatments (SD-CM-ST). The third group was a no treatment control. The fourth group was a "credible" placebo condition whereby participants were asked to listen to a CD of new age/world music that they were told also contained subliminal messages (of course, it did not). Backing their extended critique of the PSA remediation literature, Duff et al. found that students assigned to the credible placebo condition showed a reduction in trait PSA of similar magnitude to the SD and combination treatment groups. Moreover, across all students, trait PSA declined in a linear fashion over the course of the semester. In a recent study, Finn, Sawyer, and Schrodt (2009), using a technique developed by Dubner and Mills (1984) called TRIPLESPEAK, had students deliver two five-minute speeches in a normal classroom setting. Between the two speeches half of the students were assigned to present three times to small groups of their classmates which served to expose students in the experimental group to the stressful speaking task; the control group did not receive the benefit of exposure. Although both groups reported lower state PSA for the second than for the first speech, the decrease was greater for the exposure group. Consequently, the authors concluded that PSA is likely reduced across the course of a semester simply because students are continually exposed to an audience, causing them to become more relaxed as the semester progresses (see also Carrigan & Levis, 1999).

Summary

Several treatment options exist for PSA, and many of these options can be adapted and completed in the classroom, thus, limiting the need for extra space or specialized equipment. Public speaking instructors should be mindful, however, of the individual and situational constraints that may mitigate the impact of PSA treatment and the unintended consequences of treatment. For example, instructors should be mindful of student sensitivity to feedback, the degree of negativity of feedback, and the appropriate timing of certain feedback. Likewise, care should be taken if an assessment is performed at the beginning of the semester since students who are assessed at the

beginning of a semester and subsequently assigned to a particular treatment option may become stigmatized for their anxiety experience. Moreover, additional research needs to be conducted on PSA remediation with particular focus on the mechanisms underlying treatment effects.

Conclusion

This review sought to bring together a diverse literature on the nature and correlates of PSA as well as its treatment to serve as a foundation for future theory building and practice. As evidenced by the two major distinctions in the PSA literature—that between state and trait PSA and that between the physiological, cognitive, and behavioral response systems—it is critical for future research to clearly conceptualize and operationalize the various PSA components. Moreover, the impact of future research is dependent on coming to a better and more comprehensive understanding of the relationships among the various component parts of PSA and how treatment options can (or cannot) impact these parts. Certainly research has continually progressed, and we are better able to delineate the various individual and situational determinants of PSA. Specification of these determinants is not only an enterprise that benefits theory building, but also a way in which to ground treatment in the best available evidence. Instructors of public speaking now have a range of options when it comes to treating PSA. Some research suggests equivalence among remediation techniques, perhaps suggesting that as long as students are treated in some manner that PSA can be reduced and performance enhanced. Care should be taken, however, since the exact mechanisms underlying the effectiveness (or lack thereof) of different treatment options are still unknown and since the unintended consequences of treatment are largely unexplored. As educators, we have an obligation to assist our students in overcoming their speaking fear. As researchers we have an obligation to make available the best information to assist this task. By doing so, we can help ensure that reciting the eulogy is, indeed, less frightening than resting in the casket.

Notes

- [1] Although public speaking has been classified as a subtype of social anxiety disorder (for review see Cox, Clara, Sareen, & Stein, 2008), the most current edition of the DSM (APA, 2000) states “performance anxiety, stage fright, and shyness in social situations that involve unfamiliar people are common and should not be diagnosed as Social Phobia” (p. 455). Readers are referred elsewhere for reviews of social phobia research (Barlow, 2008; Ruscio et al., 2008).
- [2] The ANS is one branch of the Peripheral Nervous System (PNS). The PNS primarily permits the brain and spinal cord to function together, and the systems of the PNS (i.e., somatic and ANS) are made possible because of a large system of spinal and cranial nerves. The ANS controls bodily activities that are generally thought to operate outside conscious control (e.g., blood pressure), the main function of which “is to keep a constant body environment in the face of internal or external changes” (Andreassi, 2007, p. 65). The ANS is divided into

the Parasympathetic Nervous System which is dominant when a person is at rest and the Sympathetic Nervous System (SNS) which is dominant when a person is mobile or aroused. Heart rate and BP are measures of both subsystems, whereas SC is solely a measure of the SNS. Certainly the organization of the nervous system is not this straightforward (e.g., there are parts of the ANS contained in and under the control of the central nervous systems, e.g., the hypothalamus region of the brain), and the functions of the ANS and its component systems are much more complex. Interested readers should consult more thorough treatments of psychophysiology (Cacioppo, Tassinary, & Berntson, 2007).

- [3] Although summation can be the direct result of speaking experiences (Low & Sheets, 1951), it does not necessarily have to be as individuals most fearful of speaking tend to be novices (Gilkinson, 1943; Jensen, 1976). As Gilkinson (1943) proposes, general social anxiety can become conditioned by one or more unrelated events and later become associated with public speaking.
- [4] Based on the same principles as SD, "flooding" exposes participants to a vast amount of aversive stimuli from the beginning of therapy as opposed to a hierarchical order from least to most aversive (Marshall, Parker, & Hayes, 1982). In the case of public speaking, a therapist might have a highly anxious speaker attempt a speech in front a large crowd and require that performance until the speaker showed no signs of anxiety.
- [5] Of course, feedback does not necessarily have to deal with skills per se. For instance, in an early experimental study, Motley (1976) randomly assigned undergraduates to one of three speaking conditions where a confederate either provided (1) no feedback about a speaker's HR or indicated a speaker's HR was (2) particular low or (3) particularly high. Speakers informed their HR was particularly low exhibited a faster linear decline in their actual HR over a 4–6 minute speech than speakers informed that their HR was either particularly high or speakers given no feedback. Although this procedure has yet to be tested as a classroom remediation technique, Motley's findings do suggest that using false physiological feedback may help students.

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