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Witness Self-Efficacy: Development and Validation of the Construct

Robert J. Cramer

Sam Houston State University

Tess M.S. Neal

Jamie DeCoster

Stanley L. Brodsky

The University of Alabama

Abstract

Despite the application of Self-Efficacy Theory (Bandura, 1977, 2000) to many areas of psychology, there is a lack of research on self-efficacy in the ability to testify in court. The present study fills this gap by incrementally developing the construct of Witness Self-Efficacy and establishing its psychometric properties. Study I featured exploratory and confirmatory factor analyses yielding a two-factor Witness Self-Efficacy Scale (WSES). The two components are *Poise* and *Communication Style*. Study II used a second data collection to show that both WSES domains possess convergent, divergent, and predictive validity relations consistent with those expected using an SET framework. Notably, WSES components predicted perceptions of witness credibility and sentencing outcomes above and beyond witness extraversion, general self-efficacy and general self-confidence. Implications for SET and witness preparation training are discussed.

Key Words: Self-Efficacy; Witness Testimony; Witness Self-Efficacy; Witness Preparation; Witness Credibility; Self-Confidence; Extraversion

Witness Self-Efficacy: Development and Validation of the Construct

Self-Efficacy Theory (SET; Bandura, 1977, 2000) is one of the most ubiquitous backdrops for psychological inquiry, yet there is a dearth of application of SET to forensic psychology. The present study empirically evaluated Witness Self-Efficacy, a construct originally proposed by Cramer, Neal, and Brodsky (2009), as an extension of SET to the courtroom. Below we review SET and witness testimony research to establish a rationale for self-efficacy scale development. Drawing on this perspective, we conducted two studies establishing the conceptual and statistical validity of the Witness Self-Efficacy Scale (WSES). The first study used an online format to collect mock witness WSES ratings for exploratory and confirmatory factor analyses. The second investigation used videotaped testimony by mock witnesses and mock juror ratings for WSES construct validity.

Self-Efficacy: Background and Extension to Witness Testimony

Bandura (1977, 2000) described self-efficacy as an intricate personal belief system about one's ability to accomplish a given task. He posited that self-efficacy can be a crucial agent in behavioral change and performance outcomes (Bandura, 1989). Bandura and colleagues held that self-efficacy has cognitive, emotional, and behavioral components that are correlated with each other (e.g., Bandura, 1993, 2000; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Pastorelli, Caprara, Barbaranelli, Rolla, Rozsa, & Bandura, 2001). Research has extended self-efficacy theory into other areas of training, including psychotherapy (e.g., Dillon & Worthington, 2003; Murdock, Wendler, & Nilsson, 2005; Sheu & Lent, 2007), education (e.g., Everett, Price, & Telljohann, 1996; Sparks, 1988; Yufang, 2004) and self-defense (e.g., Ozer & Bandura, 1990; Weitlauf, Smith & Cervone, 2000; Weitlauf, Cervone, Smith, & Wright, 2001).

One area ripe for the application of SET is witness preparation training. Trial consultants and attorneys commonly seek to bolster a witness's ability to effectively communicate while

testifying (Boccaccini, 2002; Posey & Wrightsman, 2005; Neal, 2009). While witness preparation training and WSE are geared toward assisting witnesses in the style of their testimony skills, both do not address other factors such as the witness's knowledge or strength of trial evidence, two pieces of data shown to be important in influencing juror decisions (e.g., Bank & Packer, 2007; Cramer, Brodsky, & DeCoster, 2009; Devine, Clayton, Dunford, Seying, & Price, 2001). Witness preparation can be effective in improving perceptions of witnesses' behavior, credibility, and nervousness (e.g., Boccaccini, Brodsky, & Gordon, 2005; Boccaccini, Gordon, & Brodsky, 2003). What is lacking, however, is a theoretically derived and empirically validated measure of a witness's own belief in his or her ability to testify, as well as evidence showing how these beliefs are related to performance. The present studies sought to fill this gap through development of the WSES..

An important issue to consider in SET is the difference between general and task-specific self-efficacies. General self-efficacy can be broadly conceived of as an individual's perceived competence across situations (Chen, Gully, & Eden, 2001; Judge, Locke, Durham, & Kluger, 1998). Several scales measure general self-efficacy (e.g., Chen et al., 2001; Sherer, Maddux, Mercadante, Prentice-Dunn, Jacobs, & Rogers, 1982). Task-specific self-efficacies are narrower in skills pertinent to a particular domain (Bandura, 1997), and are often thought to be more robust predictors of various outcomes (e.g., Avery, 2003; Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007; Judge, Jackson, Shaw, Scott, Jackson, & Rich, 2007). Both general and social self-efficacy are commonly employed when investigating SET in new domains, and, as such, were included in the development of the Witness Self-Efficacy Scale (WSES).

Witness Self-Efficacy

Cramer, Neal, and Brodsky (2009) defined Witness Self-Efficacy (WSE) as a witness's belief in his or her ability to testify effectively in court. The implication of this definition is that

belief leads to tangible impacts on performance outcome on the stand. Consistent with Bandura's SET perspective, WSE is posited to incorporate cognitive (e.g., keeping thoughts organized), emotional (e.g., remaining calm under cross-examination), and behavioral (e.g., good eye contact) expressions.

Cramer and colleagues (in press) based their conceptualization of WSE on the forensic psychology literature depicting testimony as similar to both social performance and teaching situations (e.g., Brodsky, 1999, 2004). Cramer and colleagues postulated that an empirical assessment of WSE could identify target behaviors and provide a measure to evaluate, witness preparation training programs. Further, these authors discussed how general self-confidence is a global trait often confused with self-efficacy, and that WSE and witness confidence are separate constructs.

Study I applied SET and WSE frameworks to establish scale psychometric properties through exploratory and confirmatory factor analyses. Study II sought to extend study I by examining how the WSES performed in an actual performance situation where mock witnesses rated their perceived ability to testify before doing so and whose testimony was subsequently rated by mock jurors.

Study I: Witness Self-Efficacy Scale Exploratory and Confirmatory Factor Analyses

Witness Self-Efficacy Scale Development

The WSES was designed largely in accordance with Bandura's (2005) guidelines for the construction of self-efficacy scales. An initial 42-item pool was developed by six scholars in the area of witness research from the Witness Research Lab at the University of Alabama and one expert from Sam Houston State University. The items represented anecdotally and empirically-supported behaviors and perceptions related to efficacious testimony (e.g., Boccaccini et al., 2005; Brodsky, 1991, 2004; Brodsky, Griffin, & Cramer, in press; Brodsky, Neal, Cramer, &

Ziemke, 2009; Cramer et al., 2009; Neal & Brodsky, 2008; O'Barr, 1982; Thomas & McFayden, 1995). The initial item pool included cognitive, emotional, and behavioral indicators of WSE. From the original pool, 18 items were selected for the factor analysis based on theoretical consistency with the WSE construct.

Method

Measures

Witness Self-Efficacy. WSE was rated using the Witness Self-Efficacy Scale (WSES), an 18-item measure. Each item is rated on a five-point scale with extremes reflecting perceptions of “*not well*” and “*very well*.” Internal consistencies for the *Poise* subscale were .94 and .92 for the EFA and CFA samples, respectively. The *Communication Style* subscale reliabilities were .92 and .88 for the EFA and CFA data sets. .

Social Desirability. Social desirability was assessed using the Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960). The scale consists of 33 true/false items, 15 of which are reverse scored. After recoding, all responses to items are summed for a composite social desirability score. In a summary of studies of the MCSDS, Paulhus (1991) reported Cronbach's alpha levels from .73 to .88. Internal consistency in the present study was .75.

Social and General Self-Efficacy. Social and general self-efficacies were measured with the Self-Efficacy Scale (SES; Sherer et al., 1982). It consists of 30 items with two subscales: social self-efficacy (6 items) and general self-efficacy (17 items). There are 7 filler items that are not scored on either subscale. Each statement is rated on a 5-point Likert scale ranging from 1 (*Disagree strongly*) to 5 (*Agree strongly*). Fourteen of the items (11 general and 3 social) are reverse scored. Cronbach's alpha values obtained in the CFA sample were .86 for general self-efficacy and .69 for social self-efficacy.

Participants and Procedure

Participants were 377 introductory psychology students from a large public southeastern university who completed an online questionnaire asking them about their belief in their own ability to testify in court by rating the 18 items on the WSES. Demographic data were not collected as part of this study. However, demographic information from this subject pool has been reported in similar studies (e.g., Brodsky et al., 2009; Cramer et al., 2009). The demographic composition shows an average age of approximately 19 years (*SD* range from 2.0 to 2.5).and is predominantly female (67 to 70 percent). These samples are also predominantly Caucasian (approximately 83 percent) and Christian, with a majority of those being of the Southern Baptist denomination.

Participants also completed measures of general and social self-efficacy because new types of self-efficacy require statistical comparison to both general and other types of task-specific self-efficacy (see for example Chen et al., 2001; Sherer et al., 1982). Finally, participants filled out a social desirability scale to control for favorable self-presentation in online questionnaire formats. The total sample was randomly divided into two usable samples for factor analyses: 185 participants were used in the Exploratory Factor Analysis (EFA) and 192 in the Confirmatory Factor Analysis (CFA).

Results

Exploratory Factor Analysis. The EFA was conducted using a Principal Components Analysis with Varimax rotation due to lack of apriori expectancy of multiple correlated factors. We employed a factor loading cutoff of .40, which is within the range of cutoffs (.30 to .50) found in similar scale development studies (e.g., Brodsky, Griffin, & Cramer, in press; Schrauger & Schohn, 1995). Items loading on more than one factor were retained on both components. Examination of both the factor loadings (see Table 1) and the Scree Plot supported the

conclusion that WSES yielded two components. Factor one, labeled *Poise*, explained the most variance in WSE (51.17 percent). Factor two, called *Communication Style*, explained an additional 6.9 percent of the variance in WSE.

Confirmatory Factor Analysis. A CFA was conducted using the two-factor WSES model obtained from the EFA. This model included paths from each latent variable to the items that loaded on that factor in the EFA. The latent variables were allowed to be correlated. The model included a covariance between the error terms for items 5 and 14 as well as a covariance between the error terms for items 17 and 18 to improve model fit. CFA results supported an adequate-to-good model fit ($\chi^2 [126] = 255.26, p < .001; RMR = .05; CFI = .93; RMSEA = .07$).

Validity Analyses. Table 2 summarizes initial convergent and divergent validity data for the *Poise* and *Communication Style* domains. As expected in self-efficacy scale development, both WSES domains displayed significant moderate positive relations with general and social self-efficacy, as well a non-significant relation with social desirability. The two factors were highly correlated with each other.

Discussion

Factor analyses yielded an 18-item scale (see Appendix A) possessing a stable and robust factor structure. Factor analytic results yielded two components. Generally speaking, *Poise* can be defined as the degree of self-control one possesses on the stand. Examination of items on the *Poise* factor suggests the presence of a largely emotionally-laden construct reflecting the degree of emotional control a witness has while testifying (e.g., controlling emotions, hiding nervousness, and remaining calm on the stand). Cognitive and behavioral expressions of this domain include maintaining stable eye contact and keeping thoughts organized.

Communication Style is defined by the method of information presentation when testifying. The *Communication Style* factor also incorporates behavioral and cognitive

expressions such as maintaining stable eye contact and keeping thoughts organized. However, it is set apart from *Poise* by several verbal (e.g., providing yes/no responses) and non-verbal (e.g., posture) behavioral factors as well. *Communication Style* reflects a predominantly behavioral construct, whereas *Poise* is primarily affective.

Overall, the WSES has solid initial internal consistency, convergent validity, and divergent validity. These data are tempered by the limited reach of an online data collection format. With this limitation in mind, study II sought to add to the psychometric evaluation of the WSES in a more externally valid scenario of mock testimony and mock jury decision making.

Study II: Examination of the Witness Self-Efficacy Scale's Construct Validity

Study I presented three construct validity outcomes: social desirability, general self-efficacy, and social self-efficacy. The WSES factors showed no relation to social desirability (providing evidence of divergent validity), and moderate or strong positive relations with both types of self-efficacy (providing convergent validity). These three variables were used in study II to replicate initial convergent and divergent validity relations.

Because WSE is a new construct, we drew on related forms of self-efficacy to identify construct-related measures. Perceived ability to testify includes the ability to perform in a social situation (i.e., testifying in front of judges, attorneys, and a jury). Brodsky (1991, 1999, 2004) offered insight to this effect. Testifying requires telling a story to a jury or answering questions. In this way, it functions much in the same way that one's perceived ability in a social setting does. Moreover, Brodsky's various commentaries frame expert testimony as teaching the jury through providing scientific data or professional findings. Other witnesses have to persuade by other means (e.g., teaching the jury about what happened during a crime by providing eyewitness testimony, etc.). In either case, WSE can be conceptually linked to teaching self-efficacy because both entail persuading or teaching others. Given WSE's link to social and teaching self-

efficacy, it is possible to look at literature in these two areas to select related measures for validation of the WSES.

Social Self-Efficacy

Previous investigations of various social self-efficacy studies resulted in: a) a moderate negative correlation with depression (Muris, 2001, 2002), b) a moderate/strong negative relation with shyness in a sample of undergraduates (Smith & Betz, 2000), c) a moderate/strong positive relation with social confidence, d) a positive moderate relation with self-esteem in a sample of undergraduates (Sherer et al., 1982), and e) a positive relation with educational and military success (Sherer et al., 1982). Drawing on these data, WSE subscales can be linked to extraversion and depression. Rationale for use of extraversion as a comparative construct also comes from industrial-organizational self-efficacy literature – extraversion is at least as good a predictor of outcome as self-efficacy in regards to success in work performance (Judge et al., 2007) and vocal expressivity (Avery, 2003).

Teaching Self-Efficacy

Prior validation of teaching self-efficacy scales showed a moderate positive relation with outcome expectancy (Lumpe, Haney, & Czerniak, 2000). Extrapolating from this finding, WSES factors may also be related to outcome expectancy – in this case, the jury verdict. Research on predictive relations with self-efficacy scales showed a moderate relation between time spent teaching and self-efficacy (Brenowitz & Tuttle, 2003; Everett et al., 1996). Therefore, WSE may predict testifying success defined by positive correlations with common outcomes in witness research. Witness credibility and juror verdict decisions are among the most common outcome measures in witness and jury decision making research (e.g., Brodsky et al., in press; Brodsky et al., 2009; Cramer et al., 2009; Devine et al., 2001). In terms of witness credibility, there is ample literature suggesting that the subscale of witness confidence is an

important variable. Witness confidence has been discussed in several forensic contexts, including eyewitness accuracy (e.g., Penrod & Cutler, 1995), expert witness testimony (Cramer et al., 2009), and perceptions of credibility (e.g., Whitley & Greenberg, 1986). As such, the WSES should be investigated with particular attention to how it predicts witness confidence. Additional outcomes utilized in the present study were witness believability and agreement with the witness. These were conceptualized as outcomes reflecting persuasive testifying.

Method

Study II was carried out in two phases, each with a different set of participants. During Phase I, participants were asked to provide mock witness testimony, which was then videotaped. The mock witnesses completed scales of extraversion, general self-efficacy, social self-efficacy, general self-confidence, self-esteem, depression, and innocence expectancy. In Phase II, participants were asked to provide mock juror ratings of the testimonials constructed in Phase I. These included perceptions of witness credibility, witness believability, verdict, and agreement with testimony. The goal was to determine whether the WSE scores collected from the mock witnesses in Phase I would successfully predict the testimony ratings collected from the mock jurors in Phase II.

Procedure

Three steps were included: 1) training a mock attorney, 2) taping witnesses, and 3) obtaining juror ratings.

Mock Attorney Training. One psychology-law graduate student familiar with legal processes cross-examined each testifying mock witness. There is precedent in witness-related research for using psychology-law graduate students as mock attorneys (e.g., Boccaccini et al., 2003; Cramer et al., 2009). The following resources were used in training the mock attorney: HM Revenue & Customer guidelines for cross-examination (HMRC, 2007); a DVD on designing cross-examination questions (Pozner & Dodd, 2006); review of cross-examination trial

transcripts in the public domain; and consultation with an expert for formulation of cross-examination questions. Training consisted of approximately ten hours of individual and collaborative review. Training was stopped once the researcher and expert consultant both felt that the mock attorney demonstrated sufficient skill in developing cross-examination questions.

Cross-Examination of Mock Witnesses. The taping portion of the study was completed in a single two-hour session with each mock witness. First, undergraduate students acting as mock witnesses underwent notification and review of consent procedures. They were then asked to provide a written account of a time they had been unjustly accused of something and put through a mock deposition to illicit sufficient detail for cross-examination. As advised by Boccaccini and colleagues (2003), we limited the scope of the accusations so as to avoid potential liability and harm to the witnesses. Participants were asked not to provide allegations pertaining to: a) elder or child abuse or neglect, b) incidents containing excessive psychological or physical harm, or c) anything that could lead to a lawsuit or criminal charges. The resultant innocuous nature of allegations, while a methodological limitation, is justifiable because it complies with *APA Ethical Guidelines* (2002) to avoid causing harm to research participants (e.g., Principle A: Beneficence and Nonmalficence).

Next, for about five minutes, the researcher and attorney asked follow-up probing questions designed to clarify the written material and gather additional relevant information from the witness. The mock attorney then developed cross-examination questions based on the material provided by the mock witness while mock witnesses completed the WSES, demographic form, and construct validity questionnaires.

Finally, mock witnesses answered a series of semi-standardized cross-examination questions asked by the mock attorney while being videotaped. The cross-examination lasted between 4 and 10 minutes. The cross-examination questions were designed to elicit details

concerning the event of which the witness was accused. As Boccaccini and colleagues (2003) pointed out, it was impossible to anticipate all answers the mock witnesses would provide. Therefore, the attorney was permitted to ask questions beyond those that had been prepared to follow up unforeseen statements. Also, the testimony was limited to cross-examination only due to previous findings showing witness preparation was effective for preparing witnesses for cross (see Boccaccini et al., 2003). At the end of the session, participants received both a verbal and a written debriefing.

Obtaining Juror Ratings. Once the videotapes were created, each was evaluated by a single mock jury consisting of approximately six jurors. After being notified of rights as research participants, members of the juries received questionnaire packets, watched a randomly assigned tape of testimony, and then completed several measures about the testimony and about themselves. Each mock juror underwent the same consent/debriefing procedures as mock witnesses.

Participants. Mock witnesses and mock jurors were both drawn from an introductory psychology research pool at a large public southeastern university. Forty-one students served as mock witnesses for Phase I – the taping portion of the investigation. Mock witnesses had a mean age of 20.37 years ($SD = 4.00$). The mock witness sample consisted of 18 males and 23 females. They reported their ethnicities as Caucasian ($n = 28$), African-American ($n = 11$), Latin-American ($n = 1$), and Bi-racial ($n = 1$). Participants identified their religions as Atheist/Agnostic ($n = 14$), Southern Baptist ($n = 13$), Methodist ($n = 6$), Protestant ($n = 4$), Jewish ($n = 1$), and Buddhist ($n = 1$). Two participants failed to identify their religion.

Following taping of mock witnesses, each of the 41 mock witness tapes was observed by groups of approximately six to eight mock jurors for the jury decision making portion of the study. This group size was used to approximate the externally valid situation of some federal

and state juries. There were a total of 290 mock juror participants. The mean age of this sample was 18.90 years ($SD = 2.11$). The sample consisted of 82 males and 208 females. They reported their ethnicities as Caucasian ($n = 234$), African-American ($n = 40$), Latin-American ($n = 7$), Asian-American ($n = 3$), and Bi-racial ($n = 6$). They identified their religions as Christian ($n = 116$), Baptist ($n = 66$), Catholic ($n = 51$), Methodist ($n = 30$), Atheist/Agnostic ($n = 7$), Protestant ($n = 2$), Jewish ($n = 1$), and 'other' ($n = 17$). Fifteen of the mock jurors had testified in court prior to this experience and one had previously served on a jury. One participant failed to complete the juror ratings; therefore, the final mock juror sample available for analysis was 289.

Mock Witness Measures

Demographics. The demographic form asked about participant age, sex, race, religion, parental occupation, jury duty experience, and testifying experience.

Witness Self-Efficacy. Witness Self-Efficacy was measured with the final version of the Witness Self-Efficacy Scale developed in Study I (WSES; see Appendix A). Internal consistencies in this study were .87 for *Poise* and .86 for *Communication Style* factors.

Social Desirability. Social desirability was assessed using the Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960). See Study I for details. Cronbach's alpha was .94 in the present study.

Social and General Self-Efficacy. Social and general self-efficacy were measured with the Self-Efficacy Scale (SES; Sherer et al., 1982). See Study I for details. Internal consistencies were .80 for general self-efficacy and .88 for social self-efficacy in this study.

Witness Innocence Expectancy. Participants rated their perceived likelihood of being found innocent using a single 10-point Likert item. Higher values reflected an increased probability of being found innocent.

Self-Confidence. Self-confidence was measured using the Personal Evaluation Inventory (PEI; Shrauger & Schohn, 1995). The scale consists of 54 statements, each rated on a 4-point scale (*Strongly disagree* to *strongly agree*) with higher values reflecting greater confidence scores. The scale consists of the following 8 subscales (alpha reliability in parentheses): General (.71), Speaking (.86), Romantic (.86), Athletics (.90), Social (.82), Appearance (.83), Academic (.77), and Mood (.85) (Shrauger & Schohn, 1995). Only the 7 item General Self-Confidence subscale was used (internal consistency = .65)..

Self-Esteem. Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The scale consists of 10 statements, each rated on a 4-point Likert scale ranging from 0 (*Strongly disagree*) to 3 (*Strongly agree*). Five items are reverse scored. Recoded items are summed for an overall self-esteem score. Cronbach's alpha ranged from .77 to .88 (Rosenberg, 1986) in previous research, and was .74 in the present study.

Depression. Depression was measured with the Beck Depression Inventory – 2nd edition (BDI-II; Beck, Steer, & Brown, 1996), a 21-question survey assessing cognitive, behavioral, and affective depressive symptoms. Each item contains 4 statements pertaining to the same symptom, and participants are instructed to select the one statement that best describes them. Each item is scored 0 to 3, and all items are aggregated for a total depression score. Internal consistency ranges from .73 to .92 with a mean of .86 (Beck, Steer, & Garbin, 1988). Cronbach's alpha in the present study was .86 as well.

Extraversion. Extraversion was examined using the 10-item Introversion/Extraversion scale from the 50-item International Personality Item Pool (Goldberg, 1999; IPIP, 2001). This brief measure is reliable (.87 in Goldberg, 1999; .82 in the present study). All items keyed in the direction of introversion were reverse-scored and higher scores denote increased values of extraversion.

Mock Juror Measures

Demographics. The demographic form assessed participant age, sex, race, religion, parental occupation, jury duty experience, and testifying experience.

Witness Credibility. Witness credibility was measured using the Witness Credibility Scale (WCS; Brodsky et al., in press). The scale contains 20 items, each rated on a 10-point Likert scale. Prior factor analyses yielded 4 separate, robust domains: confidence, likeability, trustworthiness, and knowledge. Alpha coefficients have been reported for each subscale as follows: confidence (.89), likeability (.86), trustworthiness (.93), and knowledge (.86) (Brodsky et al., in press). They ranged from .89 to .96 in the present study. Additionally, the four subscales can be totaled for an overall credibility score. Alpha for the total score was .95 in previous work (Brodsky et al., in press), and .94 in this study..

Juror Rating of Guilt, Agreement, and Believability. Mock jurors rated the likelihood he or she would find the witness “not guilty”, agree with the witness’s testimony, and believe the witness’s story on individual 10-point Likert items. Higher values reflected an increased probability of being found not guilty, agreeing with testimony, and believing the witness.

Results

WSES Convergent and Divergent Validity

As advised by Cohen, Cohen, West, and Aiken (2003), bivariate correlations were used to assess convergent and divergent associations between WSES components and witness-rated characteristics. Results are summarized in Table 3. The WSES components were positively related to each other, and were both positively related to extraversion, general self-efficacy, and general self-confidence. Both WSES components showed divergent relations with depression, self-esteem, and witness innocence expectancy. The two domains of *Poise* and *Communication Style* differ in their relations to social self-efficacy and social desirability. *Poise* displayed a

moderate positive relation with social self-efficacy, whereas *Communication Style* showed no relation. *Communication Style* showed a moderate positive relation with social desirability, whereas *Poise* showed no relation.

WSES Predictive Validity of Mock-Witness Self-Ratings on Mock-Juror Ratings

Extraversion, general self-efficacy and general self-confidence all showed moderate positive relations with both WSES components. Likewise, previous literature highlighted extraversion, general self-confidence and general self-efficacy as important comparative characteristics when considering predictive ability of self-efficacy (e.g., Avery, 2003; Chen et al., 2001; Judge et al., 2007; Schrauger & Schohn, 1995). As a result, these witness variables were included as covariates in our analyses to evaluate WSES subscale abilities to predict variance in outcomes above and beyond general personality and attitude domains.

A multivariate general linear model (GLM) was used to assess the ability of the WSES components to predict sentencing outcomes, believability, agreement, and credibility ratings made by the mock jurors above and beyond the effects of witness extraversion, general self-efficacy, and self-confidence. The outcome variables were calculated using averages of mock juror ratings for each witness video. Multivariate GLM was selected because it accounts for the overlap among multiple dependent measures when determining the predictive ability of independent variables.

Table 4 summarizes results of this analysis. The WSE components of *Poise* and *Communication Style* each independently predicted several of the juror-rated outcomes. *Poise* was positively associated with innocence likelihood, agreement with testimony, and witness credibility. *Communication Style* was positively associated with agreement with testimony and witness credibility. WSES components were the only significant predictors in the model, indicating strong predictive validity with testifying outcomes.

Because both WSES components predicted overall witness credibility, a follow-up multivariate GLM was conducted using the same independent variables to predict juror perceptions of the individual witness credibility subscale factors: witness confidence, trustworthiness, likeability, and knowledge. Table 5 summarizes results of this analysis. *Poise* and *Communication Style* both positively predicted juror ratings of witness confidence at similar degrees of magnitude. Extraversion also emerged as a significant predictor of witness confidence. No other significant associations were found.

Discussion

The overall validity of WSES data is strong. Study II replicated findings from study I and provided evidence for additional convergent and divergent associations beyond those reported in study I. For the most part, WSES components displayed moderate positive relations with general and social self-efficacy across studies. Further, WSES components showed similar convergent and divergent associations with the majority of witness-rated variables, namely extraversion, general self-confidence, general self-efficacy, self-esteem, depression, and innocence expectancy.

Disparate associations of *Poise* and *Communication Style* with social self-efficacy and social desirability add to the conceptual distinctions between WSES domains. *Poise* is positively associated with social self-efficacy. This implies that a portion of WSE reflects agency in a social situation, as posited by Brodsky (1999, 2004). *Communication Style*, however does not appear to be linked to such functions of WSE. *Communication Style*, was positively related to social desirability, indicating presenting oneself in a favorable manner is important for WSE. When considering the case of testifying in court, it is logical that a witness would desire to make a good impression on the judge and jury. Thus, a strong connection between a WSE sub-component and social desirability makes sense.

Predictive validity results are promising for the WSES. Both WSES components predicted witness credibility, witness confidence, and agreement with the witness. Moreover, *Poise* predicted sentencing outcome. While these findings reflect only one empirical study, this demonstration of the predictive utility of the WSES is important. Psycho-legal literature consistently highlights witness confidence (e.g., Cramer et al., 2009; Cramer et al., in press; Penrod & Cutler, 1995) and credibility (e.g., Brodsky et al., in press; Brodsky et al., 2009; Whitley & Greenberg, 1986) as important outcome measures. Likewise, sentencing outcomes often have life-altering consequences not only for the defendant, but others involved in the trial process. Preliminary data suggest that a witness's ability to testify effectively can impact all of these critical factors in the courtroom.

The present investigation represents the first empirical evaluation of SET in a psycho-legal arena. Generally speaking, a theory is validated in a new context only to the extent that its basic principles apply to that new arena. WSE fared well in this respect, in that WSE components showed expected relations with general self-efficacy). SET also posits that self-efficacy impacts performance outcomes. WSE components predicted significant variance in three of four performance outcomes above and beyond comparative constructs, with the notable exception of witness extraversion predicting witness confidence. Overall, the nature in which self-efficacy, as defined by Bandura and others, operates is largely consistent in a legal context.

Practical applications of the present study pertain to witness preparation training. At a minimum, the WSES provides a list of empirically-supported target behaviors for witness preparation drawn from the literature on effective verbal and non-verbal behavior. The scale also shows promise as an outcome measure for use by attorneys and trial consultants in future research and practice. In his seminal work on witness preparation research, Boccaccini (2002) advised that new methods for witness preparation are needed. Following this, Boccaccini and

colleagues (2004, 2005) proffered the Persuasion Through Witness Preparation (PTWP) model. The PTWP model centers on bolstering verbal and nonverbal components of testimony including fidgeting, expressivity, posture, confidence, and emotion. A number of methods including videotaped feedback are utilized within the scope of PTWP. The integration of self-efficacy enhancement techniques with the PTWP framework outlined by Cramer, Neal and Brodsky (in press) highlights the need for new empirically-based preparation strategies. Further work on the WSES can contribute to this movement by offering a comprehensive and theoretically-informed evaluation of new witness preparation training techniques.

Limitations and future directions warrant comment. The combination of a lab setting and sample demographics inherent in mock juror research limit the generalizability of findings. Use of a more ecologically valid setting (e.g., moot courtroom, actual courtroom) and witness samples with testifying experience (e.g., police officers, expert witnesses) would address these concerns. Although the present study incorporates a variety of construct validity associations, this is not an exhaustive list. Future work on the WSES may include all of the Five-Factor Model personality traits, as well as state and trait anxiety. This would seem a logical direction given that personality research suggests conceptual trait-level associations of poise with both anxiety and neuroticism (Hayward, 1970; McKenzie, Tindell, & French, 1997; Wang & Zhang, 2005). The present study only addressed stylistic facets of testifying (e.g., verbal behaviors). The substantive content of testimony (e.g., facts of the case, testing results) was not addressed; future work may examine juror perceptions of witness knowledge, and its interaction with stylistic behaviors, using the Witness Credibility Scale (Brodsky et al., in press) or other related outcome measures. Finally, the present study did not investigate the WSES as an outcome measure for witness preparation training. This provides an obvious next step in WSES development.

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Table 1

WSES Exploratory Factor Analysis Loadings.

<i>WSES item</i>	<i>Poise</i>	<i>Communication Style</i>
1. Remain calm under cross examination	.70	-
2. Control my emotions when questioned by an aggressive Attorney	.73	-
3. Maintain a stable tone of voice when speaking	.65	-
4. Avoid fidgeting	.63	-
5. Maintain a good posture throughout the testimony	-	.72
6. Be comfortable on the witness stand	.69	-
7. Remain poised when being questioned by an attorney	.60	.53
8. Maintain eye contact with the jury	.49	.65
9. Hold eye contact with an attorney	.53	.55
10. Hide my nervousness	.72	-
11. Convey confidence in my ability	.67	.49
12. Organize my thoughts	.48	.48
13. Comfortably admit when I am uncertain of an answer	.54	-
14. Sit up	-	.79
15. Lean slightly forward when answering some questions	-	.74
16. Provide more than “yes/no” answers	-	.72
17. Act natural	.61	.54
18. Be myself when testifying	.69	-

Note: Factor loadings below .40 were considered inadequate.

Table 2

Correlation Matrix for WSES Confirmatory Factor Analysis Data

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. Poise	-	.90*	-.14	.36*	.26*
2. CS		-	-.09	.37*	.27*
3. SD			-	-.32*	-.32*
4. GSE				-	.54*
5. SSE					-

* $p < .001$

Note: CS = Communication Style; SD = Social Desirability; GSE = General Self-Efficacy; SSE = Social Self-Efficacy

Table 3

WSES Witness-Rated Convergent and Divergent Validity

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
1. Poise	-	.90***	.41**	.30	.31*	.34*	.12	.25	-.16	.21
2. CS		-	.35*	.31*	.23	.32*	.17	.17	.02	.30*
3. Ext			-	.40**	.76***	.40**	.03	.29	-.20	-.17
4. GSE				-	.55***	.76***	-.15	.64***	-.35*	.46**
5. SSE					-	.52***	-.06	.40**	-.24	.09
6. Conf						-	-.24	.70***	-.35*	.27
7. WIE							-	-.28	.25	-.02
8. SE								-	-.56***	.39**
9. Dep									-	-.18
10. SD										-

$p < .05$; ** $p < .01$; *** $p < .001$

Note: CS = Communication Style; Ext = Extraversion; GSE = General Self-Efficacy; SSE = Social Self-Efficacy; Conf = General Self-Confidence; WIE = Witness Innocence Expectancy; SE = Self-Esteem; Dep = Depression; SD = Social Desirability

Table 4

WSES Predictive Validity Multivariate General Linear Model Analysis

IV	<u>Sentencing Outcome</u>			<u>Believability</u>			<u>Agreement</u>			<u>Credibility</u>		
	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2
Poise	4.00	.05	.11	3.37	.07	.09	4.29	.05	.11	4.41	.04	.12
CS	2.10	.16	.06	2.40	.13	.07	4.28	.05	.11	5.18	.03	.13
Ext	.33	.57	.01	.32	.58	.01	.21	.65	.01	2.77	.11	.08
GSE	.16	.69	.01	.01	.98	< .01	.03	.88	< .01	.28	.60	.01
Conf	.67	.42	.02	.60	.45	.02	.06	.81	< .01	.29	.60	.01
Sex	.02	.90	< .01	.32	.56	.01	.07	.80	< .01	.04	.85	< .01

Results in **bold print** are significant relations

Note: IV = Independent Variable; Ext = Extraversion; GSE = General Self-Efficacy; Conf = General Self-Confidence; CS = Communication Style

Table 5

WSES Predictive Validity Multivariate General Linear Model Analysis with Witness Credibility Components

IV	<u>Confidence</u>			<u>Trustworthiness</u>			<u>Likeability</u>			<u>Knowledge</u>		
	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2	<i>F</i>	<i>p</i>	η^2
Poise	5.45	.03	.14	2.68	.11	.07	2.81	.10	.08	2.21	.15	.06
CS	5.49	.03	.14	2.93	.10	.08	3.29	.08	.09	3.58	.07	.10
Ext	10.95	< .01	.24	.90	.35	.03	1.59	.22	.05	< .01	.97	< .01
GSE	.41	.53	.01	.27	.61	< .01	.39	.54	.01	< .01	.99	< .01
Conf	.07	.80	< .01	.09	.77	< .01	1.09	.30	.03	.05	.83	< .01
Sex	3.78	.06	.10	.89	.35	.03	.44	.51	.01	.10	.76	< .01

Results in **bold print** are significant relations

Note: IV = Independent Variable; Ext = Extraversion; GSE = General Self-Efficacy; Conf = General Self-Confidence; CS = Communication Style

