

Western Kentucky University

TopSCHOLAR®

Masters Theses & Specialist Projects

Graduate School

Spring 2021

Serve-Specific Core Self-Evaluations: A Predictive Validation Study

Brandi Renee Forgione

Western Kentucky University, brandi.forgione963@topper.wku.edu

Follow this and additional works at: <https://digitalcommons.wku.edu/theses>



Part of the [Exercise Science Commons](#), [Industrial and Organizational Psychology Commons](#), [Other Psychology Commons](#), and the [Sports Studies Commons](#)

Recommended Citation

Forgione, Brandi Renee, "Serve-Specific Core Self-Evaluations: A Predictive Validation Study" (2021). *Masters Theses & Specialist Projects*. Paper 3503.
<https://digitalcommons.wku.edu/theses/3503>

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact topscholar@wku.edu.

SERVE SPECIFIC CORE-SELF EVALUATIONS:
A PREDICTIVE VALIDATION STUDY

A Thesis
Presented to
The Faculty of the Department of Psychological Sciences
Western Kentucky University
Bowling Green, KY

In Partial Fulfillment
Of the Requirements for the Degree
Master of Science

By
Brandi Forgione

May 2021

SERVE-SPECIFIC CORE SELF EVALUATIONS:A
PREDICTIVE VALIDATION STUDY

Date recommended April 2, 2021

Elizabeth Shoenfelt Digitally signed by Elizabeth Shoenfelt
Date: 2021.04.07 10:19:03 -05'00'

Dr. Elizabeth L. Shoenfelt, Director of Thesis

Reagan D. Brown Digitally signed by Reagan D. Brown
Date: 2021.04.07 11:09:45 -05'00'

Dr. Reagan D. Brown

Katrina A. Burch Digitally signed by Katrina A. Burch
Date: 2021.04.07 10:07:22 -05'00'

Dr. Katrina Burch



Associate Provost for Research and Graduate Education

I dedicate this thesis to my parents, Brenda and Ralph Forgione, who have provided endless support and encouragement throughout my academic pursuit. It is because of their immense love and devotion that I have been able to accomplish so much.

ACKNOWLEDGMENTS

I would like to first extend my sincere gratitude to my advisor, Dr. Betsy Shoenfelt, for her continuous guidance over the course of my graduate education. Dr. Shoenfelt has given me the opportunity to develop valuable and crucial skills to propel my future career, as well as help me to recognize my own capabilities. Additionally, I would like to thank the rest of my thesis committee, Dr. Reagan Brown and Dr. Katrina Burch, for their valuable feedback and expertise. Finally, to my cohort, Ben, Brewer, Eli, Faith, and San, thank you for the countless laughs, memories, and late-night study sessions; I couldn't have done this without you all.

TABLE OF CONTENTS

Introduction.....	1
Review of the Literature... ..	1
Background and Origin of Core-Self Evaluations (CSE)... ..	3
CSE Elements... ..	5
CSE Scale Development... ..	7
CSE Use in Organizations... ..	9
Modification of CSE... ..	11
Cross-Cultural Adaptations of CSE... ..	13
Criticism of CSE... ..	15
Summary of the Literature... ..	17
Current Study... ..	18
Method... ..	18
Participants... ..	18
Materials... ..	19
Procedure... ..	22
Results... ..	22
Discussion... ..	28
Conclusion and Implications... ..	31
References... ..	33
Appendix A... ..	40

SERVE-SPECIFIC CORE SELF-EVALUATIONS:
A PREDICTIVE VALIDATION STUDY

Brandi Forgione

May 2021

44 Pages

Directed by: Dr. Elizabeth Shoenfelt, Dr. Reagan Brown, and Dr. Katrina Burch

Department of Psychological Sciences

Western Kentucky University

Core Self-Evaluations (CSE) is a broad personality trait used by industrial organizational psychologists to predict important organizational outcomes such as job performance and employee satisfaction. CSE comprises four elements: generalized self-efficacy, self-esteem, locus of control, and neuroticism. Task-specific versions of CSE have been proposed to better predict task-specific performance than general CSE.

Accordingly, Serve-Specific Core Self-Evaluations (SS-CSE) was adapted specifically to predict serve performance of intercollegiate volleyball players. In this study, I explored the predictive validity of SS-CSE for serve performance by expanding a previous study that used a concurrent validation approach. Results indicated that SS-CSE scores collected pre-season were more strongly related to both self-reported serve performance and end of the season NCAA statistics than was general CSE. However, my distal measure of SS-CSE demonstrated incremental validity over CSE for only one serve performance measure, suggesting that SS-CSE is better as a proximal predictor of serve performance. Additionally, SS-CSE demonstrated a negative relationship with non-servers, indicating support for the predictive validity of SS-CSE in distinguishing servers from non-servers.

Introduction

Core Self-Evaluations (CSE), first introduced by Judge et al. (1997), is a broad, unitary construct that predicts organizational outcomes such as job satisfaction, performance, and commitment (Erez & Judge, 2001; Judge et al., 2003; Kanmeyer-Mueller et al., 2009). CSE has four components: generalized self-efficacy, self-esteem, locus of control, and neuroticism. CSE has been found to account for more variance in performance outcomes than any of its individual traits used independently, and when compared to other measures of personality, such as the Big Five, CSE predicts organizational outcomes as well or better (Judge et al., 2003). Furthermore, CSE has been generalized for use across cultures (Machado et al., 2016; Stumpp et al., 2010; Rode et al., 2012; Judge et al., 2004) and across various types of organizations (e.g., work, athletic teams).

Although CSE was developed as a general construct, research suggests that task-specific constructs will more accurately measure task-specific performance (e.g., Bandura, 1977; Lefcourt et al., 1979; Smith et al., 2006; Rooney & Osipow, 1992). Similarly, there is support in the literature for the use of a frame of reference as a way of improving the criterion-related validity of personality constructs by reducing between-person inconsistency in item interpretation (e.g., Bing et al., 2004; Hunthausen et al., 2003; Lievens et al., 2008; Schmit et al., 1995). Thus, with this information, one might expect that skill-specific CSE would be a better predictor of specific skill performance than would general CSE.

Currently, only two known task-specific adaptations of CSE exist. In 2008, Shoenfelt and Griffith conducted the first known study that adapted CSE to a sports domain. They developed the Serve Specific-Core Self Evaluation (SS-CSE) by

modifying the general CSE for volleyball serve performance. Similarly, building on the growing frame of reference literature, Bowling et al. (2010) created a work-specific CSE by adding the context of work to the scale. Both studies produced evidence suggesting that domain-specific CSE is a better predictor of domain-specific performance than is general CSE. To further develop the research surrounding task-specific CSE, Bowman (2017) conducted a study utilizing SS-CSE and hypothesized that SS-CSE would predict serving performance in volleyball players better than general CSE. Results indicated that serve-specific CSE was positively associated with serve performance in intercollegiate volleyball, again lending evidentiary support to the utility of task-specific CSE in predicting performance.

The research conducted to-date utilized concurrent validity designs whereby task-specific CSE and general CSE were collected at the same time as performance indicators, shedding light on their associations with performance (e.g., Bowman, 2017). My thesis will expand on Bowman's concurrent study by employing a predictive design, whereby task-specific and general CSE data were collected prior to collecting performance-related outcomes. Specifically, I collected serve-specific and general CSE and self-report serve performance measures from intercollegiate volleyball players at the beginning of the season. Then, I collected serve performance data from National College Athletics Association (NCAA) statistics at the end of the volleyball season. I then assessed the incremental predictive validity of task-specific CSE over general CSE in predicting performance reflected in NCAA statistics, as well as self-reported performance.

Review of the Core Self-Evaluations Literature

Employing personality assessments for the prediction of important, real-world

outcomes is a long-standing practice in the field of psychology. In fact, traits such as the Big Five and Positive Affectivity/Negative Affectivity have been extensively researched for prediction purposes (e.g., Rode et al., 2012; Schmitt et al., 2004; Costa & McCrae, 1992; Berry et al., 2000; Zhang, 2016). CSE, in particular, is noted for its value in predicting organizational outcomes such as satisfaction (e.g., Judge & Bono, 2001; Dormann et al., 2006; Stumpp, et al., 2010; Srivastava et al., 2010; Holtschlag et al., 2018), performance (e.g., Judge & Bono, 2001; Grant and Wrzesniewski, 2010; Erez & Judge, 2001), and commitment (e.g., Zhang et al., 2014; Yan et al., 2018). Eventually, the Core Self-Evaluations Scale (CSES) was developed, providing researchers with a reliable and standardized way to measure the four lower order components of CSE as one construct (Judge et al., 2003). Individuals who have high CSE tend to view themselves and the world positively, believe in their ability to perform tasks/jobs, and approach situations in a self-assured manner. In this paper I first provide a review of CSE background and development, use in organizations, modifications, and cross-cultural uses. I then present my thesis study, ending with critiques of CSE and suggestions for future avenues of research.

Background and Origins of CSE

The idea of core evaluations was first proposed by Edith Packer (1985) who claimed that such evaluations are subconscious, fundamental operations of the psyche in all individuals. Expanding on this theory, Judge et al. (1997) first proposed a higher order, integrative construct to be used in the prediction of job satisfaction called core self-evaluations. CSE represents the fundamental premises one holds about their own self-worth and competence in their environment (Judge et al., 1998). People with positive core

self-evaluations tend to be self-assured and hold a generally positive view of themselves across a variety of situations (Judge & Kammeyer-Mueller, 2011). They believe in their ability to perform, believe they are in control of their lives, hold themselves in high regard, and approach situations with optimism and confidence (Judge & Kammeyer-Mueller, 2011).

Judge et al. (1997) claimed that core self-evaluations were comprised of dispositional traits that met three criteria: evaluation-focus, fundamentality, and scope. Evaluation-focus is the degree to which a trait is evaluative of the self rather than descriptive (Judge et al., 1997). Johnson et al. (2007) claimed that evaluative traits directly influence attitudes and beliefs about oneself, whereas descriptive traits have more indirect effects. Fundamentality refers to how central a trait is to the self. Central traits are thought to underlie more surface traits (Chang et al., 2012) and have more connections to peripheral traits (Johnson et al., 2007). Judge et al. (1997) considered self-esteem to be the most fundamental trait as it reflects one's overall value one places on themself. Finally, scope, or breadth, is the extent to which a trait is broad, encompassing a large content domain, or narrow, and more content-specific (Chang et al., 2012). In other words, core traits are broad, evaluative traits central to one's self-concept. Based on these criteria, Judge et al. (1997) proposed that CSE is comprised of four traits: self-esteem, generalized self-efficacy, locus of control, and neuroticism.

The implication of this higher-order construct is that together these traits account for more variance in organizational outcomes than any of the constructs used independently or in concert with each other (Judge et al., 1997; Rode et al., 2012). In other words, CSE provides unique contributions to the prediction of several different

variables beyond what could be obtained by a single trait (Erez & Judge, 2001) or any combination of the four traits (Judge et al., 2003). The following section will provide an overview of each of the four individual traits comprising CSE.

CSE Elements

Generalized self-efficacy is defined as one's judgment of their ability to perform well across a variety of situations (Bandura, 1982). Although generalized self-efficacy and self-esteem are argued to be related, and some consider generalized self-efficacy to be a component of self-esteem, there is evidence to suggest that task-specific self-efficacy may be unrelated because a specific task may be unrelated to an individual's appraisal of their life and value (Judge et al., 1997). However, for the purpose of core evaluations, generalized self-efficacy is included due to its dispositional nature. That is, those who hold a strong belief in their ability to perform (i.e., high self-efficacy) are more likely to effectively approach challenges in both life and at work through persistence and resilience and to achieve success on the job and in life (Judge et al., 1997).

Self-esteem is the broadest of the four traits and refers to the overall thoughts, feelings, and value one places on themselves as a person (Harter, 1990). Self-esteem is the most fundamental of the core self-evaluation traits as it serves a broad evaluative function of one's general self-appraisal (Judge et al., 1997). However, Johnson et al. (2007) argued that of the four core traits, self-esteem fits the least well based on the definition of CSE as a fundamental evaluation of self-regulatory processes. That is, because self-esteem is a result of self-regulation rather than an antecedent, its causal contribution to self-regulation remains unclear.

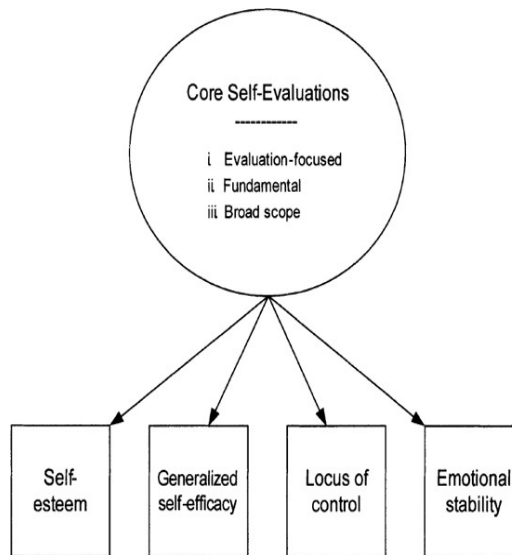
Locus of control refers to one's belief in whether they have control over their own life circumstances and the associated outcomes, or if those circumstances are controlled

by a force beyond their control. Those who believe the latter are considered to have an external locus of control, whereas individuals who believe they are in control of their life have an internal locus of control (Rotter, 1990). Individuals who have an internal locus of control are more likely to perform better in their jobs and are more likely to leave situations in which they are not happy. As such, they experience higher levels of job satisfaction (Judge et al., 1997).

Finally, neuroticism, or low emotional stability, can be conceptualized as the inverse of self-esteem (Judge et al., 1997). According to Costa and McCrae (1992), those with higher levels of neuroticism experience prolonged dissatisfaction across situations. Consequently, individuals who have high levels of neuroticism tend to be anxious and fearful, easily stressed, and view their peers less favorably (Judge et al., 1998). Neuroticism and negative affectivity are closely related and there has been some debate surrounding the independence of the traits (Judge et al., 1997). Because measures of negative affectivity frequently pull from measures of neuroticism, Judge et al. (1997) claimed negative affectivity would likely have very little predictive power over neuroticism and thusly justified the use of neuroticism instead. Figure 1 summarizes the criteria and the traits determined by Judge et al. (1997) to comprise CSE.

Figure 1.

Core-Self Evaluations Criteria and Traits (Judge et al., 1997).



CSE Scale Development

Despite the growing research around core self-evaluations, it was uncommon for its four components to be studied together, and even more uncommon for them to be discussed as in relation to each other. However, Judge et al. (2003) argued that self-esteem, self-efficacy, locus of control, and neuroticism actually share a common core; this means that core self-evaluations are actually a higher-order, latent construct that is realized by the measurement of these four traits (Judge et al., 2003). Typically, most personality traits are measured using short and direct scales whereas, prior to its conception, measures of CSE were indirect and relatively long. Judge et al. provided two limitations to measurement of this form. First, indirect measures of a trait are likely to be less valid than direct measures of the latent concept. Second, CSE's lengthy measurement may inhibit its practical usefulness; researchers or practitioners may choose to measure only one element, thereby limiting variance accounted for (Judge et al., 2003). Thus, the need for a validated, direct measure of CSE was evident.

Upon development of the core self-evaluation scale (CSES), Judge et al. (2003) established several necessary conditions of a valid measure of CSE. First is the establishment of construct validity in regard to reliability. Namely, three forms of reliability must be assessed: internal consistency, test-retest, and interrater reliability. Second, the measure must evaluate the commonality of the traits as single unitary construct. The final conditions stated that the relationship and predictive power of CSES with the four core traits and other theoretically relevant constructs was to be addressed (i.e., convergent and discriminant validity). Once these criteria were established, Judge et al. began data collection. Based on existing literature involving the four core traits independently and their existing measures, Judge et al. developed a pool of 65 items from which their final items were selected. The final 12 items of the CSES met four criteria: adequate coverage of the four trait content domains; items significantly correlated with one another; item correlations followed theoretical expectations for correlations with job satisfaction, life satisfaction, and job performance; and the overall scale was short (Judge et al., 2003). It is important to note that in an attempt to measure the commonality of the four core traits and not over-weigh any one construct, many of the items in the final CSES can be argued to measure more than one trait (Judge et al., 2003).

Judge et al. (2003) indicated that the measure met the conditions for construct validity. The average item-total-correlations resulted in a mean of .50 and three reliability estimates (i.e., internal-consistency reliability, test-retest reliability, and interrater reliability) were above .80 with an average reliability of .84. Similarly, the instrument shows good stability, with a test-retest reliability of .81. Judge et al. (2003) also assessed the CSES in terms of convergent and divergent validity; results displayed strong

convergent validity and distinct divergent validity consistent with theoretical predictions. Empirical validity of the CSES was determined by its significant correlation with three criteria: job satisfaction, job performance, and life satisfaction. In addition, Judge et al. (2003) demonstrated the scale's incremental validity beyond that of the pre-existing measures of the core factors. In other words, the CSES is a better predictor of CSE than existing measures (Judge et al., 2003). In further support of this argument, a hierarchical regression was run to determine the extent of information lost by measuring CSE with CSES rather than self-esteem, self-efficacy, locus of control, and neuroticism independently. Results of the analysis revealed that CSES performed as well and added significant variance beyond the four traits. Overall, Judge et al., (2003) claimed that measuring the four traits independently could result in lower predictive power than measuring the greater construct, CSE.

CSE Use in Organizations

In the following section, I discuss the accumulation of research that supports the use of CSE in the workplace because of its relationship to several work-related criteria. CSE has been found to positively correlate with outcomes such as job satisfaction (e.g., Judge et al., 1997), job performance (e.g., Judge & Bono, 2001), motivation (e.g., Judge et al., 1998), and workcommitment (e.g., Zhang et al., 2014).

Judge et al., (1997) first developed the construct of CSE as a theoretical framework to predict job satisfaction. Since then, its reputation among researchers and practitioners has led to CSE becoming the most commonly investigated predictor of job satisfaction (Judge et al., 2005). CSE has consistently displayed a strong positive relationship with job satisfaction and exhibited strong predictive validity (e.g., Judge & Bono, 2001; Dormann et al., 2006; Stomp, et al., 2010). Similar results have been found

in studies examining the relationship between CSE and career satisfaction (Holtschlag et al., 2018), task satisfaction (Srivastava et al., 2010); life satisfaction (Judge et al., 1998), and sport satisfaction (Baudin et al., 2014). Furthermore, researchers have argued that CSE may play a role in the relationship between job satisfaction and other work criteria. Nguyen and Borteyrou (2016) argued that CSE is a moderator between person-environment fit and job satisfaction, whereas Judge et al. (1997; Judge et al., 1998) argued that perceptions of job characteristics play a key role in the relationship between CSE and job satisfaction. Specifically, those who have high CSE view their job and work environment more positively and thus experience more job satisfaction.

In their meta-analysis, Judge & Bono (2001) found that CSE was related to job performance across both laboratory and field settings. While CSE has been found to significantly correlate with and predict job performance, the research indicating both the direction and the strength of this relationship has been surprisingly inconsistent (Judge & Bono, 2001; Judge et al., 2003). Grant and Wrzesniewski (2010) argued that the CSE-job performance relationship depends on the extent to which an individual is other oriented (i.e., concerned for the well-being of others). Furthermore, research has also indicated that CSE is related to motivation, and that motivation mediates the CSE-job performance relationship (Judge et al., 1998; Erez & Judge, 2001).

In a study of Chinese soldiers, Zhang et al. (2014) found that CSE was significantly related to job satisfaction but was mediated by career commitment. Soldiers with higher CSE were more likely to be loyal to their job and thus, to put in more effort and potentially receive greater rewards, increasing satisfaction. Yan et al. (2018) investigated the relationship between CSE and work engagement and found that

emotional intelligence may mediate the relationship. This finding suggests that individuals with higher CSE also have more emotional intelligence, thus increasing their engagement with work.

In summary, this section demonstrated the use of CSE in organizations for the prediction of work-related outcomes. Although there are several work criteria related to CSE that were not addressed in this review (e.g., work-family conflict, organizational citizenship behaviors, and burnout), CSE's strong positive relationships with those discussed make CSE a valuable tool for organizations.

Modification of CSE

Although CSE was originally developed as a broad and general construct, previous research supports the use of a domain or task-specific construct to better predict domain or task-specific performance. Bandura (2006), who first proposed the construct of self-efficacy in 1977, claimed that considering the relevant domain of functioning is critical to the construction of thorough scales. Furthermore, Bandura indicated that scales cannot accurately measure certain constructs and will lack predictive utility if the scale fails to include the relevant context of that construct. In other words, the context within which a particular construct exists should be considered when measuring said construct. Similarly, Schmit et al. (1995) contextualized self-report personality items to situations relevant to the construct of interest. This contextualization provided participants with a common frame-of-reference when responding to the measure. Results indicated that differences in frame-of-reference lead to differences in item interpretation and, thus increases in measurement error and reductions in reliability; reductions in reliability then lead to reductions in validity. Accordingly, providing a common frame-of-reference that

is relevant to the construct of interest could standardize item interpretation and increase reliability and subsequent test validity. Since its introduction to the personality scale literature, support for contextualized items providing a common frame-of-reference has grown (e.g., Bing et al., 2004; Hunthausen et al., 2003; Lievens et al., 2008). Therefore, drawing on previous literature supporting contextualized and task-specific scales, one might expect that skill-specific CSE would be a better predictor of specific skill performance than would general CSE. To date, only two such scales are known to have been constructed: the Serve-Specific Core Self Evaluation Scale (Shoenfelt & Griffith, 2008) and the Work-Specific Core Self Evaluation Scale (Bowling et al., 2010).

The use of CSE to predict a variety of performance outcomes has extended from traditional organizations to the world of athletics. In an effort to display the benefits of task-specific CSE, Shoenfelt and Griffith (2008) conducted the first known study that applied task-specific CSE to a sports domain. In a study examining mental skills training in collegiate volleyball players, Shoenfelt and Griffith (2008) measured player's self-efficacy of serving before and after they received training using a modified CSES. By adding the word "serve" to each of the twelve items of the original CSES, Shoenfelt and Griffith (2008) modified the scale to be task-specific; the new scale was called the Serve-Specific Core Self-Evaluations Scale (SS-CSES). Results revealed that scores on the SS-CSE were positively correlated with serve performance, thus providing evidentiary support for its use in predicting serve performance. In a thesis, Bowman (2017) hypothesized that that SS-CSE would predict serving performance in volleyball players better than general CSE. Bowman found that the SS-CSE was a significantly better predictor of serving performance than was general CSE. Thus, Bowman (2017) provided

strong evidence that the SS-CSE has incremental validity beyond that of general CSE.

This further supports the literature claiming that task specific constructs will predict task specific outcomes beyond that of a general construct. The SS-CSE is one of only two known task-specific adaptations of CSE that have been developed (Shoenfelt & Griffith, 2008; Bowling et al., 2010).

In a 2010 study, Bowling et al. argued that by relying on the use of the general CSES rather than domain-specific scales, researchers have underestimated the importance and power of CSE. To test their theory, Bowling et al. (2010) modified the general CSE to be work-specific by including the words 'at work' before each item of the CSES and instructing participants to think of work while completing the measure. Results from the study provided only limited support for the hypothesis that work-specific CSE would predict work-related outcomes better than the general CSE. However, Bowling et al. (2010) found consistent evidence that work-specific CSE was related to work-specific criteria after general CSE was controlled. In other words, work-specific CSE displayed incremental validity beyond that of general CSE; thus providing support for the continued use of domain-specific measures.

Cross-Cultural adaptations of CSE

Several researchers have adapted or translated CSE for use in other cultures (Machado et al., 2016; Stumpp et al., 2010; Rode et al., 2012; Judge et al., 2004). Judge et al. (2004) conducted the first cross-cultural comparison of CSE. Using three independent samples, Dutch and Spanish versions of the CSES were correlated with the Big Five dimensions and job relevant

variables (i.e., job satisfaction and career ambition). The translated versions of the CSES returned results comparable to those of the English CSES (Judge et al., 2004). Both the Dutch and Spanish CSES showed discriminant validity with the Big Five. Similarly, the Dutch CSES displayed strong positive correlations with job satisfaction; the Spanish CSES displayed strong positive correlations with career ambition (which was conceived as a motivational trait). In summary, the psychometric properties and predictive validity of both the Dutch and Spanish CSES demonstrated similar results to the English CSES, providing evidence for the cross-cultural generalizability of CSE.

Similarly, Stumpp et al. (2010) investigated the CSE-career success relationship and the CSE-organizational commitment relationship in three samples of German workers. The original CSES was first translated to German and subsequently tested for construct and criterion validity. Results revealed internal consistency reliabilities above .80 ($\alpha = .86$, $\alpha = .81$, $\alpha = .82$) and test-retest reliability over a 2-month interval. Furthermore, the scale demonstrated convergent validity with the four core traits and discriminant validity with the Big Five traits. Finally, predictive validity of the German CSES was evident in its relationship with organizational commitment and career success. Together, the findings from this study expanded the literature on cross-cultural validity of the CSES.

In further development of the universal use of the CSES, Rode et al., (2012) conducted the first known empirical study of CSE in a collectivistic culture. The researchers conducted two different studies examining the predictive validity of CSE for multiple job attitudes on Chinese workers. Consistent with their hypotheses, CSE predicted each of the 24 attitudinal variables across both studies. The findings from this

research were profound because up to that point, CSE had only been applied in individualistic cultures (e.g., the United States). By demonstrating the use of CSE to predict work attitudes in a highly collectivistic culture such as China, Rode et al., (2012) were able to expand the literature supporting the universal predictive validity of CSE. In addition to the CSES, the SS-CSES has been generalized across cultures.

As previously mentioned, Shoenfelt and Griffith (2008) modified the CSES to be a task-specific scale for serving performance among collegiate volleyball players; this scale was called the SS-CSES. Machado et al. (2016) conducted an extension of Shoenfelt and Griffith (2008) by assessing the use of the SS-CSES when translated into Portuguese. The SS-CSES was administered in English and again in Portuguese to bilingual volleyball players to assess the reliability of scores; results revealed a strong correlation among the two versions of the scale ($r = .96$), indicating a successful translation (Machado et al., 2016). Additionally, the translated scale demonstrated reliability and validity consistent with that of the original CSES. SS-CSE was positively related to years of practice and level of competition. This study is important in two ways, not only do Machado et al. (2016) provide support for the generalization of the SS-CSES across cultures, but their study also strengthens support for the use of CSE in sports. In summary, the cumulative data from these cross-cultural studies strengthens the evidence that the CSES and task-specific versions of the scale are psychometrically robust by assessing their validity cross-culturally and, thus, have generalizable predictive value.

Criticism of CSE

Despite demonstrations of the diverse value of CSE across cultures and organizations, it is not without its critics. Arguably the most enduring criticism of CSE is

the claim that CSE is nothing more than a combination of certain Big Five personality traits, namely conscientious, extraversion and emotional stability (Schmitt, 2004; Chang et al., 2012). In fact, Rode et al. (2012) cited the frequency with which this topic has been directly addressed over several articles by researchers (Judge & Bono, 2001; Erez and Judge, 2001; Judge et al., 2003; Judge et al., 2004; Judge et al., 2008). To start, Judge and Bono (2001) reported correlations of the core traits with three of the Big Five traits and offered insight into those correlations. They found that self-esteem and neuroticism were significantly correlated with Extraversion ($r = .36$ and $r = .26$, respectively) and Conscientiousness ($r = .39$ and $r = .28$, respectively). However, these moderately positive correlations are expected because it is reasonable to conclude that individuals who are high in CSE may also be extroverted and outgoing (Robins et al., 2001); similarly, self-esteem has been considered an aspect of conscientiousness (Costa & McCrae, 1992) thus further explaining these relationships (Judge et al., 2003). Further, Judge et al. (2001) discussed that the four core traits are strongly correlated with each other and that this may actually be an indicator of the latent trait they overlay (i.e., CSE).

A similar concern about CSE is that it is another gauge or measure of emotional stability (e.g., Eysenck, 1990; Johnson, 2007). The focal argument, that CSE is just a broader conceptualization of emotional stability, disregards the unique contribution CSE provides to predictive validity and overall theoretical conceptions of personality. While low emotional stability (i.e., neuroticism) is strongly correlated with the other core traits ($r = .48$), their empirical relationship does not mean that they are redundant, as mentioned in the previous section. The relationship simply confirms the overall concept by Judge et al. (1997) that the core traits share a latent construct, and thus are manifestations of CSE.

Common measures of emotional stability, such as the NEO-PI-R (Costa & McCrae, 1992) use more narrow measures of the construct than the CSES. Therefore, Judge et al. (2003) claimed that for CSE to actually be just another form of emotional stability, measures of emotional stability would need to be broader to avoid underreporting and to adequately cover the evaluative criteria of CSE. For this same reason, Judge et al. (2003) claimed that common measures of neuroticism more closely measure anxiety. Moreover, Judge et al. (2008) found emotional stability to be the best predictor of job satisfaction among all of the Big Five traits. However, it was not the best predictor of the four CSE traits. Thus, supporting the claim that CSE offers more than just a measure of emotional stability.

Summary of the Literature

Using personality to predict organizational outcomes continues to be a thriving topic of research. Judge et al. (1997) first developed CSE as a way to predict job performance or satisfaction; since then, it has been linked to the prediction of several other criteria. CSE is a broad, latent trait consisting of four core traits: generalized self-efficacy, self-esteem, locus of control and neuroticism. In order to accurately measure CSE, Judge et al. (2003) developed the CSES. The use of CSE has expanded from traditional organizational settings to include sport organizations and has been successfully translated across cultures. Despite these findings, CSE has been critiqued for its similarity to the Big Five personality traits and has faced criticism of its overall use as a higher order trait. However, studies such as Judge et al. (2003) provided evidence that CSE is conceptually distinct from the Big Five and offers more in predictive validity.

Current Study

The purpose of the current study was to serve as an extension to Bowman (2017), in which SS-CSE was found to be more strongly related to serve performance than general CSE, and the SS-CSES had incremental validity over the general CSES in predicting serve performance outcomes in volleyball. Furthermore, Bowman (2017) used a concurrent validity design for the collection of his measures such that the predictor variables (i.e., SS-CSE and general CSE) were measured at the same time as the dependent variables (i.e., serve performance and NCAA statistics). The current study used a predictive validation design in which measures of SS-CSE, general CSE, and self-report serve performance were collected pre-season; NCAA serve statistics were collected post-season. This study contributes to the limited research providing evidence for the use of a task-specific adaptation of the CSE for the prediction of task-specific performance. Additionally, results from this study may provide valuable information to athletes and coaches about specific areas to focus their efforts to improve serve performance.

The following hypotheses were tested:

Hypothesis 1: SS-CSE will be positively related to serve performance. *Hypothesis 2:* SS-

CSE will be more strongly related to serve performance than will general CSE.

Hypothesis 3: SS-CSE will demonstrate incremental validity over CSE when predicting serve performance.

Method

Participants

Data were collected from 28 intercollegiate women's volleyball players from six

Division I universities: Appalachian State University, Bowling Green State University, Creighton University, Georgia State University, Purdue University, and Western Kentucky University. On the questionnaire, athletes indicated whether they served in the Fall 2019 season. As the major premise of the study was to determine if the SS-CSE was related to serve performance, analyses were run only with data from the 28 athletes who served in the Fall 2019 season. There were about four times as many servers ($n = 28$) as non-servers ($n = 6$). Although non-servers may serve in practice, if they did not serve in competition in Fall 2019, performance statistics were not available. Additionally, it is reasonable that responses from non-servers are irrelevant to predicting competition serve performance in the Fall 2019 season). The average age of the 28 serve participants was 19.86 years ($SD = 1.24$) and included 6 freshmen, 4 sophomores, 11 juniors, and 7 seniors. On average, the athletes indicated that they had 9.14 years ($SD = 2.85$) of experience playing volleyball.

Materials

A close-ended questionnaire (see Appendix A) was administered to participants online. The questionnaire included the 12 items from the CSES, 12 items from the SS-CSES, 11 items from the mental toughness scale (Magridal, Hamil, & Gil, 2013), 9 items addressing serve performance, and 8 demographic items. The CSES and the SS-CSES were used to measure the predictor variables at the beginning of the season. Additionally, to gauge the level of effort and focus participants were engaging in while completing the questionnaire, after each section they were asked to indicate how much effort they exerted (e.g., “How much effort did you put forth when responding to the Serving Self-Evaluation Scale?”) and what they were thinking about while responding to the items

(e.g., “What were you thinking about when completing the ServingSelf-Evaluation Scale?”). Athletes rated their effort on a five-point Likert Scale where a rating of 1 indicated “Very low effort” and a rating of 5 indicated “Very high effort.”

The first section of the questionnaire asked participants to provide demographic information including their name, whether they served in the Fall 2019 season, gender, age, ethnicity, grade level, number of years playing volleyball, and the college they attended. Participants were then asked to complete the 12 items from the CSES (Cronbach’s alpha = .75) and the 11 items from the Mental Toughness Scale (Cronbach’s alpha = .77). Madrigal et al. (2013) specifically developed the Mental Toughness Scale for use with intercollegiate athletes; the scale is designed to measure the key components of mental toughness related to being an intercollegiate athlete. The mental toughness scale was included to help establish discriminant validity. Six of the 12 CSES items are negatively worded and thus, were reverse scored. The mean was calculated to attain a CSE composite score. The mean was calculated for the 11 mental toughness items to form a mental toughness composite score. After completing this scale, participants indicated what they were thinking about when responding, and how much effort they put forth. The next section contained the 12 item SS-CSES (Cronbach’s alpha = .90). As before, after completing the items they were asked to indicate what they were thinking about while responding and how much effort they put forth. Six of the SS-CSES items are negatively worded and thus, were reverse scored. The mean was calculated to attain a SS-CSE composite score.

Finally, participants completed items about their serve performance. Two scales, constructed by Bowman (2017), were used to measure serve performance. The first scale

included four items (i.e., items 1- 4 in the Serve Performance section in Appendix A). Items 1, 2, and 3 asked participants about their level of agreement with statements regarding their serve performance (e.g. “My serve usually puts the ball in play.”). Athletes responded on a 5-point Likert scale where 1 indicated a strong level of disagreement and 5 indicated a strong level of agreement. Item 4 asked participants to rate their level of serve performance. Athletes responded on a 5-point Likert scale where 1 indicated very poor performance and 5 indicated very good performance. The mean of these four items was calculated to form a composite score, General Perceptions of Serve Performance (GPSP). A higher score indicated a higher level of perceived performance. An internal consistency analysis of GPSP revealed that it had a Cronbach’s alpha of .62, indicating a moderate level of reliability. Bowman (2017) found that when Item 1 was deleted, alpha increased from .76 to .86 and subsequently dropped Item 1 from the GPSP measure. However, no such increase in alpha was present for this study, and thus all items were included in the GPSP measure.

The second performance measure consisted of five items (i.e., items 5-9 in the Serve Performance section in Appendix A) asking athletes to indicate the percent of time their serve attained a specific result (e.g., “% of time my serve puts the ball in play.”). One item (% errors) was negatively worded and thus was reverse scored. The mean of these four items was calculated to form a composite score, Self-Report Serve Percentage (SRSP). A high score indicated a higher level of performance. An internal consistency analysis of SRSP revealed that it had a Cronbach’s alpha of .17. However, when Item 4 was deleted, alpha increased to .52, indicating greater reliability. Accordingly, Item 4 was dropped from the SRSP measure. Bowman (2017) conducted an internal consistency

analysis of SRSP and obtained a Cronbach's alpha of .74, retaining all 5 measures of SRSP.

Finally, 2019 serve statistics were collected for each athlete as an objective measure of serve performance. Six NCAA statistics were collected from each university's website and served as separate performance measures. The statistics collected included: service aces, serviceaces per set, service errors, ace-to-error ratio, serve percentage, and ace-efficiency rating. Ace efficiency is not an official NCAA statistic, but it is recorded by some teams and leagues; therefore, it was included for the purpose of this study. Ace efficiency is calculated by subtracting the number of service errors from the number of service aces then dividing this difference by the number of total service attempts. Each statistic served as a separate measure of performance.

Procedure

Head coaches were contacted at the beginning of the season via email requesting their team's participation in the study. The coaches willing to have their athletes participate forwarded the questionnaire URL to their players. Before beginning the questionnaire, players who wished to participate electronically signed an informed consent document disclosing the purpose, explanation of procedures, risks, and benefits of the study, as well as the right to refuse or withdraw from the study at any time. Participants were able to skip any questions they did not wish to answer and were able to exit the survey by closing their web browser at any time. It was estimated that the questionnaire would take 20-25 minutes to complete. At the end of the season, serve-performance and NCAA statistics were collected.

Results

Before any statistical analyses were conducted, the level of effort participants put

forth, and what they were thinking about while responding to the questionnaire were determined. Responses on the effort scale indicated that all participants responded to all items with at least moderate effort; CSE and Mental Toughness effort ($M = 3.82$, $SD = 0.82$), SS-CSE effort ($M = 4.04$, $SD = 0.79$), GPSP and SRSP effort ($M = 3.39$, $SD = 0.90$). Responses to the open-ended thought items, indicated that virtually all participants were thinking about things related to their serve performance when responding to the SS-CSE items. When responding to the CSE and mental toughness scales, responses to thought items indicated that the most common things participants were thinking about were school, life in general, and athletics.

First, to examine the relationship between the three independent variables in this study (CSE, Mental Toughness, and SS-CSE), a correlational analysis was conducted. There was significant association between CSE and SS-CSE, $r(28) = .71$, $p < .01$. Although these two measures are related, they predict athlete serve performance differently, as seen in subsequent analyses. SS-CSES had a non-significant relationship with mental toughness $r(28) = .26$, $p > .05$. This lack of a relationship helps demonstrate the discriminant validity of the SS-CSES from a similar measure (i.e., Mental Toughness). All means, standard deviations, and correlations between study variables are provided in Table 1.

Hypothesis 1, stated that SS-CSE would have a positive relationship with serve performance. To test this hypothesis, a correlational analysis was conducted. There were significant positive correlations between SS-CSE and GPSP, $r(28) = .75$, $p < .01$ and between SS-CSE and SRSP, $r(28) = .46$, $p < .01$. To demonstrate that SS-CSE was related to serve performance and that CSE and mental toughness were not, four more

correlations were run. Although there was a significant relationship between CSE and GPSP $r(28) = .43, p < .05$, there was a non-significant relationship between CSE and SRSP $r(28) = .30, p > .05$. Regarding mental toughness, there were non-significant relationships with GPSP $r(28) = -0.02, p > .05$, and SRSP $r(28) = -0.06, p > .05$.

Hypothesis 2 stated that SS-CSE will be more strongly related to serve performance than will general CSE. To determine how much stronger the relationship was between SS-CSE and serve performance versus CSE and serve performance, I used Steiger's (1980) z-test of difference in dependent correlations. This test is used to determine the difference between dependent correlations, or correlations that involve a common variable. I used Steiger's formula 14; $\bar{t}_1 = (N - 3)^{1/2} (z_{jk} - z_{jh}) (2 - 2\sqrt{r_{jkh}})^{-1/2}$ and determined that the correlation between SS-CSE and GPSP was significantly stronger than the correlation between CSE and GPSP ($z = 2.56, p < .05$).

Table 1.*Descriptive Statistics and Correlations for all Study Variables*

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. CSE	3.68	0.47											
2. MT	4.05	0.42	0.46**										
3. SS-CSE	3.86	0.61	0.71**	0.26									
4. GPSP	3.69	0.64	0.43*	-0.02	0.75**								
5. SRSP	63.25	8.79	0.30	-0.06	0.46**	0.57**							
6. Service aces	18.68	16.29	-0.08	-0.19	0.16	0.53**	0.49**						
7. Services aces/set	0.17	0.15	0.10	0.02	0.29	0.51**	0.39*	0.82**					
8. Service errors	19.57	17.06	-0.08	-0.05	0.12	0.39*	0.55**	0.82**	0.65**				
9. Ace/Error ratio	1.39	1.61	-0.43*	-0.11	-0.19	-0.12	-0.21	-0.08	-0.13	-0.36			
10. Serve percentage	0.91	0.04	0.06	-0.01	0.11	-0.10	-0.28	-0.19	-0.12	-0.42*	0.49**		
11. Ace efficiency	-0.009	0.07	0.35*	0.20	0.37*	0.18	0.41*	0.02	0.11	0.38*	-0.64**	-0.31	

Note. * $p < .05$, ** $p < .01$. CSE = Core Self-Evaluations, MT = Mental Toughness, SS-CSE = Serve-Specific Core-Self Evaluations, GPSP = General Perceptions of Serve Performance, SRSP = Self-Report Serve Perceptions

Similarly, SS-CSE yielded a significantly stronger relationship with SRSP compared to CSE ($z = 2.52, p > .05$). SS-CSE had a significant correlation with ace efficiency ($r = .37$); a Steiger's z-test was conducted to examine if this relationship was stronger than the relationship between CSE and ace efficiency ($r = .35$). There was a significant difference in the relationship between SS-CSE and ace efficiency and CSE and ace efficiency ($z = 2.10, p < .05$). Table 2 provides a comparison of SS-CSE and CSE zero-order relationships with the three performance criteria.

Table 2.

Comparisons of SS-CSE and CSE zero-order relationships serve-performance criteria

Criteria	N	SS-CSE	CSE	z
GPSP	28	.75**	.43*	2.56*
SRSP	28	.46**	.30	2.52*
Ace efficiency	28	.37*	.35*	2.10*

Note. * $p < .05$, ** $p < .01$. CSE = Core Self-Evaluations, SS-CSE = Serve-Specific Core-Self Evaluations, GPSP = General Perceptions of Serve Performance, SRSP = Self- Report Serve Perceptions

Hypothesis 3 stated that the SS-CSES will demonstrate incremental validity over the CSES when predicting serve performance. This hypothesis was tested using hierarchical multiple regression analysis. The independent variables were scores on the SS-CSES and scores on the CSES; the dependent variables were scores on the two serve performance measures and serve statistics.

The first analysis addressed the relationship between CSE and SS-CSE in predicting GPSP (general perceptions of serve performance). At step one of the analysis, CSE scores were entered into the regression equation, and were significantly related to GPSP $F(1,25) = 6.17, p < .05$. An R^2 of .19 was observed, indicating that approximately 19% of the variance in GPSP could be accounted for by CSE. At step two SS-CSE scores were added to the

equation in addition to CSE. The addition of SS-CSE to the regression equation containing CSE resulted in a significant increase in the relationship with GPSP, $\Delta R^2 = .38$, $F(1, 25) = 23.11$, $p < .05$. An R^2 of .58 was observed, indicating that 58% of the variance in GPSP could be accounted for with the addition of SS-CSE.

An identical stepwise regression was conducted with SRSP (self-reported serve percentage). At step one of the analysis, CSE scores were entered into the regression equation and were not significantly related to SRSP $F(1, 25) = 2.59$, $p > .05$ ($R^2 = .09$). At step two, SS-CSE scores were added to the equation in addition to CSE. The addition of SS-CSE to the regression equation containing CSE resulted in a non-significant increase in the relationship with SRSP, $\Delta R^2 = .11$, $F(1, 25) = 3.67$, $p < .05$. An R^2 of .21 was observed, indicating that 21% of the variance in GPSP could be accounted for with the addition of SS-CSE.

A hierarchical multiple regression was conducted with the serve statistic that had a significant correlation with SS-CSE (i.e., ace efficiency) as the dependent variable. CSE scores were entered into the regression equation at step one resulting in a non-significant relationship with serve performance $F(1, 25) = 3.74$, $p > .05$. An R^2 of .13 was observed, indicating that approximately 13% the variance in ace efficiency could be explained by CSE. SS-CSE scores were entered into the model in step two resulting in a non-significant increase in the relationship with ace efficiency, $\Delta R^2 = .02$, $F(1, 25) = 0.62$, $p < .05$. An R^2 of .15 was observed, indicating that 15% of the variance in ace efficiency was accounted for with the addition of SS-CSE.

Hypothesis 3 was only partially supported as SS-CSE had incremental validity over CSE only for the dependent variable of GPSP. The results from the regression analyses for SRSP and ace efficiency were not significant; neither CSE nor SS-CSE predecited these dependent variables and SS-CESE failed to demonstrate incremental validity.

Additional Analyses

Additional analyses were run to further investigate the construct of SS-CSE by categorizing athletes as those who serve versus those who do not serve. The relationship between CSE and SS-CSE for non-servers was significant ($r = -.43$) and was of smaller magnitude and a different direction than for servers ($r = .71$). These correlations suggest that SS-CSE and CSE have significantly different relationships in servers and non-servers ($z = 3.29, p < .05$). Furthermore, SS-CSE was significantly correlated with scores on the mental toughness scale at a higher magnitude for non-servers ($r = .46$) than for servers ($r = .26$) ($z = 1.84, p < .05$).

Discussion

This study served as an extension of Bowman (2017), in which SS-CSE was found to be more strongly related to serve performance than was general CSE, and in which SS-CSE had incremental validity over the general CSE in predicting serve performance outcomes in volleyball. Bowman (2017) used a concurrent validity design for the collection of his measures such that the predictor variables (i.e., SS-CSE and general CSE) were measured at the same time as the dependent variables (i.e., self-report serve performance and NCAA statistics), whereas the current study used a predictive validation design in which measures of SS-CSE, general CSE, and self-report serve performance were collected pre-season, and NCAA serve statistics were collected post-season. The first two hypotheses were supported. As expected, SS-CSE was positively related to serve performance and had a significantly

greater relationship with serve performance than did general CSE. SS-CSE had a significant relationship with both self-report performance measures (i.e., GPSP and SRSP) and with one of the NCAA serve statistics (i.e., ace efficiency). General CSE was significantly correlated with one of self-report performance measures (i.e., GPSP) and with one of the NCAA serve statistics (i.e., ace efficiency). Results from Steiger's z-test indicated that the correlations between SS-CSE with GPSP and with ace efficiency were significantly stronger than the correlations between general CSE with GPSP and with ace efficiency. These results are similar to those found by Bowman (2017), with two exceptions. Results from Bowman's concurrent validation study revealed no significant correlations between CSE and self-report performance measures, but did find both CSE and SS-CSE to be significantly related to two NCAA statistics, aces and ace efficiency.

Results from the three hierarchical multiple regressions only partially supported the final hypothesis that SS-CSES would demonstrate incremental validity over CSES when predicting serve performance. SS-CSE had incremental validity over CSE in predicting GPSP, suggesting that SS-CSE is a better predictor of the self-report performance measure than general CSE. However, the addition of SS-CSE in the regressions of both SRSP and ace efficiency failed to yield significant increases in the relationship over CSE. Results from Bowman's (2017) regressions indicate that SS-CSE had incremental validity over CSE in predicting all four serve performance statistics, suggesting that SS-CSE is a better proximal predictor of athlete serve performance than is general CSE.

Additional analyses were run to further investigate the relationship between SS-CSE and athletes who served in the 2019 volleyball season versus those that did not serve. Interestingly, results revealed that SS-CSE and CSE were negatively correlated in those who did not serve. This relationship stands in contrast with the strong positive relationship

between SS-CSE and CSE for athletes who did serve, suggesting some support for the predictive validity of SS-CSE as it has a different relationship with CSE for servers and non-servers. Furthermore, SS-CSE was significantly correlated with mental toughness for non-servers but not for servers. That is, for non-servers, for whom SS-CSE has less meaning, SS-CSE may reflect more of a general mental toughness construct than it does for servers and, as such, SS-CSE lacks support for discriminant validity for non-servers.

This study used a predictive validation design where the predictors were collected at the beginning of the volleyball season (along with the self-report performance measures) and the NCAA statistics were collected at the end of the season. As such, it is not surprising that results of the current study were not as robust as the results in Bowman(2017) due to the intervening time between the collection of predictor measures and the objective performance measures. It is reasonable to expect athlete serve performance to improve over the season as players gain more experience with a concomitant increase in SS-CSE. End-of-season SS-CSE scores were not available, but may have been more strongly related to the end-of-season performance measures, as found in Bowman.

Although the magnitude of the relationships in the current study were lower than those found in Bowman (2017), the results of this study support previous research demonstrating that task-specific variations of more general constructs to be better predictors of specific task performance than the general constructs (e.g., Bandura, 1982; Bowling et al., 2010; Bowman, 2017). Furthermore, only a few studies have examined the relationship between SS-CSE and serve performance (Shoenfelt & Griffith, 2008; Machado et al., 2016; Bowman, 2017). As such, this study contributes to a limited, but promising area of research.

Study Limitations

This study had a few potential limitations. First, as previously discussed, self-reported

serve performance measures were collected at the beginning of the volleyball season, while NCAA serve statistics were collected at the end of the season. Given that performance is expected to improve over the course of the season, future research should consider collecting self-report measures and NCAA statistics both early in the season and at the end of the season to more accurately evaluate predictive and concurrent validity.

Furthermore, as with Bowman (2017), this study used self-report measures. It is possible that participants may have inflated or deflated results as a result of social desirability bias. That is, responses on self-report measures may not accurately reflect perceptions because participants are attempting to appear more socially desirable. However, responses on items that asked about mental effort and what participants were thinking about during the survey indicated that participants attempted to respond as truthfully and accurately as possible. Finally, SS-CSE and CSE are individual constructs and volleyball is a team sport. Thus, it might be of interest to expand the research on task-specific CSE by examining its dynamics in sports with individual recognition (e.g., tennis, track, golf).

Conclusion and Implications

This study contributes to the limited research providing evidence for the use of a task-specific adaptation of CSE for the prediction of task-specific performance. SS-CSE was found to be more strongly related to serve performance than CSE, but had incremental validity over CSE only for predicting GPSP. The findings of this study have some implications for coaches and athletes when combined with the results from Bowman (2017). The results of these studies suggest that SS-CSE should be used over general CSE when predicting serve performance in intercollegiate athletes. However, results also indicate that when using SS-CSE to predict serve performance, the measure should be taken closer to the time of performance (i.e., concurrent) rather than at the beginning of the season (i.e.,

predictive) for better prediction. This study supports the use of task-specific measures over general measures and provides some direction for future research on task-specific measures.

References

- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*, 122-147.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Adolescence and education: Self-efficacy and adolescence* (Vol. 5, pp. 307–337). Information Age.
- Baudin, N., Blanch, A., Rolland, J. P., Mari-Guiu, M., & Aluja, A. (2014). Core self-evaluation, life satisfaction, and sport satisfaction. *Escritos de Psicología*, *7*(3), 19-24.
- Berry, D., Willingham, J., & Thayer, C. (2000). Affect and personality as predictors of conflict and closeness in young adults' friendships. *Journal of Research in Personality*, *34*, 84-107.
- Bing, M. N., Whanger, J. C., Davison, H. K., & VanHook, J. B. (2004). Incremental validity of the frame-of-reference effect in personality scale scores: A replication and extension. *Journal of Applied Psychology*, *89*, 150–157.
- Bono, J. E., & Judge, T. A. (2003). Core self-evaluations: A review of the trait and its role in job satisfaction and job performance. *European Journal of Personality*, *17*(1), S5–S18.
- Bowling, N. A., Wang, Q., Tang, H. Y., & Kennedy, D. D. (2010). A comparison of general and work-specific measures of core self-evaluations. *Journal of Vocational Behavior*, *76*, 559-566.

- Bowman, Joshua, S., “An examination of the incremental validity of the serve-specific core self-evaluation scale over the core self-evaluation scale in predicting serve performance” (2017). *Masters Theses & Specialist Projects*. Paper 1944.
<http://digitalcommons.wku.edu/theses/1944>
- Chang, C., Ferris, D. L., Johnson, R. E., Rosen, C. C., Tan, J. A. (2012). Core self-evaluations: A review and evaluation of the literature. *Journal of Management*, 38(1), 81-128.
- Costa P.T. & McCrae R.R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) manual*. Psychological Assessment Resources.
- Dormann, C., Fay, D., Zapf, D., & Frese, M. (2006). A state-trait analysis of job satisfaction: On the effect of core self-evaluations. *Applied Psychology: An International Review*, 55(1), 27-51.
- Erez, A., & Judge, T. A. (2001). Relationship of core self-evaluations to goal setting, motivation, and performance. *Journal of Applied Psychology*, 86, 1270-1279.
- Eysenck, H. J. (1990). Biological dimensions of personality. In L.A. Pervin (Ed.), *Handbook of personality* (pp. 244–276). The Guilford Press.
- Grant, A., & Wrzesniewski, A. (2010). I won't let you down...or will I? Core self-evaluations, other-orientation, anticipated guilt and gratitude, and job performance. *Journal of Applied Psychology*, 95(1), 108-121.
- Harter, S. (1990). Causes, correlates, and the functional role of global self-worth: A life-span perspective. In R. J. Sternberg & J. Kolligan Jr. (Eds.), *Competence considered* (pp. 67-97). Yale University Press.

- Holtschlag, C., Reiche, B. S., & Masuda, A. D. (2018). How and when do core self-evaluations predict career satisfaction? The roles of positive goal emotions and occupational embeddedness. *Applied Psychology: An International Review*, *68*(1), 126-149.
- Hunthausen, J. M., Truxillo, D., Bauer, T., Hammer, L. (2003). A field study of frame-of-reference effects on personality test validity. *Journal of Applied Psychology*, *88*(3), 545-551.
- Johnson, R. E., Rosen, C. C., & Levy, P. R. (2007). Getting to the core of core self-evaluation: A review and recommendations. *Journal of Organizational Behavior*, *29*, 391-413.
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and job performance: A meta-analysis. *The Journal of Applied Psychology*, *86*, 80–92.
- Judge, T. A., & Kammeyer-Mueller, J.D. (2011). Implications of core self-evaluations for a changing organizational context. *Human Resources Management Review*, *21*, 331-341.
- Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology*, *90*(2), 257–268.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology*, *56*, 303-331.

- Judge, T. A., Heller, D., & Klinger, R. (2008). The dispositional sources of job satisfaction: A comparative test. *Applied Psychology: An International Review*, 57(3), 361–372.
- Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. In L. L. Cummins & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 19, pp. 151-188). Jai Press Inc.
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, 83(1), 17-34.
- Judge, T. A., Van Vianen, A. E. M., & De Pater, I. E. (2004). Emotional stability, core self-evaluations, and job outcomes: A review of the evidence and an agenda for future research. *Human Performance*, 17(3), 325–346.
- Kammeyer-Mueller, J. D., Judge, T. A., & Scott, B. A. (2009). The role of core self-evaluations in the coping process. *Journal of Applied Psychology*, 94, 177-195.
- Lefcourt, H. M., Von Baeyer, C. L., Ware, E. E., Cox, D. J. (1979). The multidimensional-multiattributinal causality scale: The development of a goal specific locus of control scale. *Canadian Journal of Behavioural Science*, 11(4), 286-304.
- Lievens, F., Conway, J., & Corte, W. (2008). The relative importance of task, citizenship, and counterproductive performance to job performance ratings: Do rater source and team-based culture matter? *Journal of Occupational and Organizational Psychology*, 81(1), 11-27.

- Machado, T. D. A., Shoenfelt, E. L., Nascimento, J. V. D., Taconeli, C. A., Forbellone, A. A., Brown, R. D., & Stefanello, J. M. F. (2016). Development and evaluation of the serve-specific core self-evaluations scale in Portuguese. *International Journal of Sport and Exercise Psychology*, 1-10.
- Madrigal, L., Hamil, S., & Gil, D. L. (2013). Mind over matter: The development of the Mental Toughness Scale (MTS). *The Sport Psychologist*, 27, 62-77.
- Nguyen, N., & Borteyrou, X. (2016). Core self-evaluations as a mediator of the relationship between person–environment fit and job satisfaction among laboratory technicians. *Personality and Individual Differences*, 99, 89-93.
- Packer, E. (1985). *Understanding the subconscious*. Jefferson School of Philosophy, Economics, and Psychology.
- Robins, R. W., Tracy, J. D., Trzesniewski, K., Potter, J., & Gosling, S. D. (2001). Personality correlates of self-esteem. *Journal of Research in Personality*, 35, 463-482.
- Rode, J. C., Judge, T. A., & Sun, J. M. (2012). Incremental validity of core self-evaluations in the presence of other select self-concept traits: An investigation of applied psychology criteria in the United States and China. *Journal of Leadership and Organizational Studies*, 19, 326-340.
- Rooney, R. A., & Osipow, S. H. (1992). Task-specific occupational self-efficacy scale: The development and validation of a prototype. *Journal of Vocational Behavior*, 40(1), 14-32.
- Rotter, J. B. (1990). Internal versus external control of reinforcement. *American Psychologist*, 45, 489-493.

- Schmit, M. J., Ryan, A. M., Stierwalt, S. L., Powell, A. B. (1995). Frame-of-reference effects on personality scale scores and criterion-related validity. *Journal of Applied Psychology, 80*(5), 607-620.
- Schmitt, N. (2004). Beyond the Big Five: Increases in understanding and practicality utility. *Human Performance, 17*, 347-357.
- Shoenfelt, E. L., & Griffith, A. U. (2008). Evaluation of mental skills program for serving for an intercollegiate volleyball team. *Perceptual Motor Skills, 107*, 293-306.
- Smith, S. A., Kass, S. J., Rotunda, R. J., & Schneider, S. K. (2006). *North American Journal of Psychology, 8*(1), 171-182.
- Srivastava, A., Locke, E. A., Judge, T. A., & Adams, J. W. (2010). Core self-evaluations as causes of satisfaction: The mediating role of seeking task complexity. *Journal of Vocational Behavior, 77*, 255-265.
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin, 87*, 245-251.
- Stumpp, T., Muck, P. M., Hußlsheger, U. R., Judge, T. A., & Maier, G. W. (2010). Core self-evaluations in Germany: Validation of a German measure and its relationships with career success. *Applied Psychology, 59*(4), 674–700.
- Yan, X., Yang, K., Su, J., Luo, Z., & Wen, Z. (2018). Mediating role of emotional intelligence on the associations between core self-evaluations and job satisfaction, work engagement as indices of work-related well-being. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues, 37*(3), 552-558.

- Zhang, J., Wu, Q., Miao, D., Yan, X., & Peng, J. (2014). The impact of core self-evaluations on job satisfaction: The mediator role of career commitment. *Social Indicators Research, 116*(3), 809–822.
- Zhang, R. P. (2016). Positive affect and self-efficacy as mediators between personality and life satisfaction in Chinese college freshmen. *Journal of Happiness Studies, 17*, 2007-2021.

APPENDIX A

Self-Evaluations and Serve Performance

Thank you, in advance, for completing this questionnaire and for your assistance with this important study!

Please carefully read all directions. Please complete the Demographic Information on this page before completing the other items on the next pages.

DEMOGRAPHIC INFORMATION:

Directions: As researchers, we are sometimes interested in determining if certain groups respond differently (e.g., male vs female, freshman vs seniors, etc.). To make these comparisons, we need you to complete the demographic information below. Your responses will be kept confidential and only aggregated/group responses will be reported.

Please complete the following demographic information.

1. Name _____ (to match your responses with the serve statistics provided by your coach).
2. Gender: ___ Male ___ Female
3. Age: _____
4. Ethnicity:
___ African American/Black ___ Middle Eastern
___ American Indian/Alaskan Native ___ Native Hawaiian/Other Pacific Islander
___ Asian ___ Caucasian/White
___ Hispanic/Latino ___ Other: (Please specify) _____
5. Year in school: ___ Freshman ___ Sophomore ___ Junior ___ Senior ___ Grad Student
6. Number of years playing volleyball: _____
7. School/College/University: _____

SELF-EVALUATION

Directions: Below are several statements about you with which you may agree or disagree. Using the response scale below, indicate your level of agreement or disagreement with each item by placing the appropriate number on the line preceding that item.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. _____ I am confident I get the success I deserve in life.
 2. _____ Sometimes I feel depressed.
 3. _____ When I try, I generally succeed.
 4. _____ Sometimes when I fail I feel worthless.
 5. _____ I complete tasks successfully.
 6. _____ Sometimes, I do not feel in control of my work.
 7. _____ Overall, I am satisfied with myself.
 8. _____ I am filled with doubts about my competence.
 9. _____ I determine what will happen in my life.
 10. _____ I do not feel in control of my success in my career.
 11. _____ I am capable of coping with most of my problems.
 12. _____ There are times when things look pretty bleak and hopeless to me.
-

PART B

1. _____ I have an inner arrogance that makes me believe I can achieve anything I set my mind to.
2. _____ I know when to celebrate success but also know when to stop and focus on the next challenge.
3. _____ I have a killer instinct to capitalize on the moment when I know I can win.
4. _____ I know what needs to be done to achieve the level of performance required to win.
5. _____ I have the patience and discipline to control my efforts to achieve each goal along the ladder of success.
6. _____ Even though I am tired, I continue to train to achieve my goal.
7. _____ I use all aspects of a very difficult training environment to my advantage.
8. _____ I am able to increase my effort if it is required to win.
9. _____ When an obstacle is in my way I find a way to overcome it.
10. _____ I accept, embrace, and even welcome the elements of training that are considered painful.
11. _____ I have total commitment to my performance goal until every possible opportunity of success has passed

Please answer the following 2 questions about how you responded to the Self-Evaluation scales (the 23 items above).

12. What were you thinking about when completing the above items? (Please fill in below.)

13. How much effort did you put forth when responding to the Self-Evaluation items? Circle the number below that reflects your answer.

1	2	3	4	5
Very low effort	Low effort	Moderate effort	High effort	Very high effort

SERVING SELF-EVALUATION

Directions: Below are several statements about you when you are serving with which you may agree or disagree. Using the response scale below, indicate your level of agreement or disagreement with each item by placing the appropriate number on the line preceding that item. **Think about when you are serving while completing these items.**

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. _____ I am confident I get the outcome I deserve when I serve.
2. _____ Sometimes I feel depressed when I think of my serve.
3. _____ When serving, I generally succeed.
4. _____ Sometimes when I fail at serving I feel worthless.
5. _____ I complete my serve successfully.
6. _____ Sometimes, I do not feel in control of my serve.
7. _____ Overall, I am satisfied with my serve.
8. _____ I am filled with doubts about my serving competence.
9. _____ I determine what will happen with my serve
10. _____ I do not feel in control of my success in my serving.
11. _____ I am capable of coping with most of my serving problems.
12. _____ There are times when my serve looks pretty bleak and hopeless to me.

Please answer the following 2 questions about how you responded to the Serving Self-Evaluation Scale (the 12 items above).

13. What were you thinking about when completing the above items? (Please fill in below.)

14. How much effort did you put forth when responding to the Serving Self-Evaluation Scale? Circle the number below that reflects your answer.

1	2	3	4	5
Very low effort	Low effort	Moderate effort	High effort	Very high effort

SERVE PERFORMANCE SCALE

Directions: Below are three statements about you with which you may agree or disagree. Using the response scale below, indicate your level of agreement or disagreement with each item by placing the appropriate number on the line preceding that item.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. _____ My serve usually puts the ball in play.
 2. _____ My opponent generally has trouble returning my serve.
 3. _____ Others say I am great at serving.
-

4. Generally, how would you rate your serve performance? Circle the number below that reflects your answer.

1	2	3	4	5
Very Poor	Poor	Acceptable	Good	Very Good

Directions: Please indicate the percent of time your serve attains the results below. For each item, write the percentage on the line preceding that item.

5. _____ % of the time my serve puts the ball in play.
6. _____ % of the time my aggressive serve puts the ball in play.
7. _____ % of the time my serve gets the other team out of system.
8. _____ % of the time my serve is an ace.
9. _____ % of the time my serve is an error.

10. How much effort did you put forth when responding to the **Serve Performance Scale** (the 9 items above)? Circle the number below that reflects your answer.

1	2	3	4	5
Very low effort effort	Low effort	Moderate effort	High effort	Very high effort

Thank you for participating!