# Measuring College Students' Community Service Attitudes Validly and Efficiently: Development of a Short Version of the Community Service Attitudes Scale

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## ABSTRACT

The current study presents a brief-version of an existing Community-Service Attitudes Scale (CSAS; Shiarella, McCarthy, & Tucker, 2000) that is theoretically grounded, psychometrically sound, and empirically validated. Students (n = 544) participating in courses that required a service-learning component were administered the original CSAS and validation measures. An exploratory factor analysis suggested an eight-factor, 24-item solution with simple structure and good fit indices; a confirmatory factor analysis suggested good model fit, good internal consistency, and construct validity. The CSAS-Brief is an important tool that could help facilitate research studies and experiences related to community engagement in higher education.

*Keywords*: exploratory factor analysis, confirmatory factor analysis, community-based learning, service learning, university students

## INTRODUCTION

Higher education institutions and faculty are continuing to infuse their curriculums with more classroom activities that engage students in civic projects (Lake, Winterbottom, Ethridge, & Kelly, 2015; Maloyed, 2016). Students who engage in service-learning projects are believed to gain positive experiences that are difficult to replicate in a standard classroom setting (Bringle & Hatcher, 1995; 2002). Indeed, researchers find that these service-learning activities tend to foster many positive qualities and outcomes for students, instructors, and academic institutions as a whole (Hwang, Wang, Tu, Chen, & Chang, 2014; Roodin, Brown, & Shedlock, 2013; Wang, 2013).

Assessment of the short- and long-term effects of service learning on student outcomes is a critical component of service learning projects (Roodin et al., 2013) and a variety of measures have been used to evaluate community-based learning experiences. Although existing measures have several positive qualities, no measure could be located that is (1) brief, (2) theoretically grounded, (3) psychometrically sound, and (4) empirically validated, all of which are features that are necessary to facilitate rigorous evaluation (Stukas, Clary, & Snyder, 1999). Some community service attitudes measures do have theoretical grounding, drawing on varied theories such as Bandura's social learning theory and principle of reciprocal determinism (e.g., Self-Efficacy towards Service Motivation for

Civic Participation; Weber, Weber, Sleeper, & Schneider, 2004; Community Service Self-efficacy Scale; Reeb, Katsuyama, Sammon, & Yoder, 1998), service-learning models and theories of moral development (e.g., Scale of Service Learning Involvement; Olney & Grande, 1995), Dewey's philosophy of learning (e.g., Webster & Worrell, 2003), and Schwartz's Model of Altruistic Behavior (e.g., Shiarella, McCarthy, & Tucker, 2000).

Additionally, only a portion of these measures have been developed using a psychometric approach that included principal components analyses (PCA), reliability assessment, or validation against other measures (e.g., Community Service Attitude Scale, Shiarella et al., 2000; Volunteer Functions Inventory, Clary, et al., 1998; Gallini & Moely, 2003). At least one measure, the Personal and Social Responsibility Inventory (PSRI; see http://www.psri.hs.iastate.edu/) was developed using an exploratory factor analysis (EFA), but the scale is quite long (i.e., 64 items) and does not present the theoretical grounding on which it was based. Overall, no measure could be located that was constructed using an EFA that 1) included a reliability assessment, 2) was validated, 3) had a sound theoretical foundation, and 4) was a length that is easily administered. To accomplish these four requirements for a strong measure of service learning, an existing measure with good theoretical grounding and decent previous evidence of reliability and validity was chosen to develop into a brief measure, the Community Service Attitudes Scale (CSAS; Shiarella et al., 2000).

**Community-Service Attitudes Scale**

The 46-item Community Service Attitudes Scale (CSAS) was created as a measure of college students' attitudes toward community-based learning activities

15 years ago (Shiarella et al., 2000). The CSAS was based, theoretically, on Schwartz's model of altruistic behavior, which could explain crucial steps needed for an individual to become regularly active in community service (Schwartz, 1977; Schwartz & Howard, 1982, 1984). In the first step of this four-phase model, activation, individuals become aware of both the needs of others in their community and of their own responsibility to help (Schwartz, 1977; Figure 1). In the obligation phase, individual personal norms prompt them to consider taking action (Schwartz, 1977). In the next phase, defense, individuals consider personal costs of volunteering as well as personal and societal benefits of community service, and reassess the situation by re-evaluating the seriousness of the problem and their responsibility and perceived norms to help (Schwartz, 1977). Finally, in the response phase, individuals decide whether or not to engage in community service (Schwartz, 1977).

Shiarella and colleagues (2000) devised items to map on to each of these four phases, which they tested on a university sample (n = 769). Using PCA, the final measure was proposed to be made of eight components of student community service engagement attitudes (see supplementary Table 1 for list of all items in CSAS-Original): (1) normative helping behaviors (NOR), (2) students' feelings of connectedness to society (CON), (3) perceived costs (COS), (4) awareness of community need (AWA), (5) student intentions (INT), (6) perceived benefits (BEN), (7) seriousness (SER), and (8) perceived career benefits (CAR). These eight factors accounted for 65% of item variance in their sample, but the items did not achieve simple structure (i.e., small cross-loadings on secondary factors; Thurstone, 1947) and because a PCA, and not the preferred method of EFA, was used, it is unclear how well the model fit

the data (Shiarella et al., 2000). In terms of theory, the items loaded relatively closely to what was hypothesized by Schwartz (1977), but the CSAS items loaded onto eight components instead of the 10 suggested by Schwartz, and one of the components included items from two of Schwartz's phases. Finally, Shiarella et al. (2000) found the original CSAS to show good internal consistency with Cronbach's alphas between 0.72 and 0.93 for the eight subscales and 0.92 for the overall scale as well as good construct validity and content validity (Perry et al., 2014; Shiarella et al., 2000). This suggests that the CSAS items within the factors are good measures of what they intend to measure, and are consistent in their measurement of the eight subscales.

The CSAS is worthy of additional examination and development because it has been widely used in both predicting intention to engage in community service (e.g., Cooper, Cripps, & Reisman, 2013; Downey, 2013; Hellman Hoppes, & Ellison, 2006; Penick, Fallshore, & Spencer, 2014; Simmer-Beck et al., 2013) and in examining differences in scores between groups (Bauer, Moskal, Gosink, Lucena, & Munoz, 2007; Hoppes & Hellman, 2007; Perry, Osbaldiston, & Henning, 2014). However, studies that have used the CSAS and its eight subscales in predicting outcomes have produced mixed findings. Some researchers have demonstrated support for their hypotheses regarding the CSAS (Cooper, Cripps, & Reisman, 2013). Other researchers' hypotheses regarding the CSAS appear to either be wholly unsupported or show significant results only for select subscales (Downey, 2013; Hellman Hoppes, & Ellison, 2006; Penick, Fallshore, & Spencer, 2014; Simmer-Beck et al., 2013). These mixed findings could be due to the way in which the original CSAS was devised, which may be causing unintention-

al measurement error and type II errors (Carroll, Ruppert, Stefanski, & Crainiceanu, 2006). In this manner, researchers who have used this scale may have failed to detect true relations between their service-learning experiences and student outcomes due to aspects of the measure that were ineffectively assessing the student's community-service attitudes.

The current study aimed to improve the psychometric properties of the CSAS based on advances in scale development techniques since the original scale was published (see supplementary material outlining technical aspects of psychometric improvements), reduce the number of items to aid in ease of administration, and better match Schwartz's (1977) theory of altruism using exploratory and confirmatory factor analyses. Furthermore, the revised measure was examined for validity by comparing it to measures of personality, empathy, experiential learning, and academic motivation. Finally, students were compared on their responses to the CSAS based on demographic characteristics and reported previous experience with service-learning projects.

METHOD

**Participants**

Participants were 544 (438 women, 104 men, 2 not identified) undergraduates from a large southeast university who were enrolled in introductory psychology courses (43% Social Psychology; 38% Lifespan Development; 19% Not identified) that incorporated a service-learning assignment. Participants were collected over three semesters from 2013-2014. Participants' ages ranged from 18 to 72 (M = 22.25, SD = 5.39). Varying ethnicities were reported: 69% (n = 376) Caucasian/White, 10% (n = 54) African-American/Black, 7% (n = 36) Hispanic/Latino, 5% (n = 26) Asian-

American/Asian, 5% (n = 28) Multi-ethnicities, 3% (n = 18) Other, and 1% (n = 6) unidentified.

**Procedure**

All participants completed the CSAS (Shiarella et al., 2000) as part of a larger survey assessing student development during community-based learning activities. Participants agreed to an electronically presented informed consent form and completed the survey via a link to an online survey system at the beginning and end of the semester; baseline assessments were only included in the current study. Surveys took between 15-20 minutes to complete. Participants were compensated for their time with a nominal extra credit incentive worth approximately 1% of their total grade. All research was approved by the University IRB.

**Measures**

**Community Service Attitudes Scale (CSAS).** Students completed the 46 item CSAS using a 1 (strongly disagree / extremely unlikely) to 7 (strongly agree / extremely likely) Likert-scale (see supplementary Table 1). All eight subscales were included: normative helping attitudes, connectedness, costs, awareness, intentions, benefits, seriousness, and career benefits. Items related to "costs" of community service were reverse-scored (six items) so higher scores reflected perception of less personal cost. A total score is achieved by averaging all items into a single score; subscales scores are achieved by averaging each of the eight subscales individually. Higher scores are indicative of more favorable attitudes toward community service.

**Big Five Inventory.** Participants completed the Big Five Inventory (John, Donahue, & Kentle, 1991) at the start of the semester to measure personality characteristics. The self-report measure includes 44 items using a 1 (strongly disagree) to 5 (strongly agree) Likert scale and measures five subscales: openness, conscientiousness, agreeableness, extraversion, and neuroticism. There were 16 reverse-scored items and a total score is achieved by averaging each of the five subscales. Internal consistencies for the subscales ranged from 0.75 to 0.86.

**Empathy Assessment Index (EAI).** Participants completed the EAI (Lietz, Gerdes, Sun, Geiger, Wagaman, & Segal, 2011) at the start and end of the semester to assess changes in their level of empathetic understanding. The self-report measure includes 17 items using a 1 (never) to 6 (always) Likert scale and measures five subscales: affective response, emotion regulation, perspective taking, self-other awareness, and empathetic attitudes. The total score was utilized in the current student, which was achieved by averaging all items into a single score where higher scores indicate higher levels of empathy. The internal consistency of the entire scale was 0.82.

**Academic Motivation Scale (AMS).** Participants completed the AMS (Vallerand et al., 1992) at the start of the semester to assess their motivation to succeed academically. The self-report measure includes 28 items using a 1 (not at all) to 7 (exactly) Likert scale and measures seven areas related to motivation (i.e., intrinsic motivation, identified regulation, introjected regulation, external regulation, amotivation). The total score was utilized for the current student, which was achieved by averaging all items into a single score. Higher scores indicate high levels of motivation toward education. The internal consistency of the entire scale was 0.90.

RESULTS

Data were collected across three semesters and the dataset was randomly split

in two using SPSS (SPSS, version 19) to allow for two analyses. On the first half of the sample, we conducted an EFA (n = 271). On the second half, we performed a confirmatory factor analysis (CFA) to confirm the factor structure that was suggested from the EFA (n = 273). The sample size and ratio of number of participants to number of variables was similar to existing recommendations (Cattell, 1978; MacCallum, 1999; Tabachnick & Fidell, 2007). Mplus with maximum likelihood estimator and Geomin rotation was used for both the EFA and CFA; the oblique Geomin rotation was chosen to allow for correlated factors (Muthén & Muthén, 2010) because Shiarella et al.'s (2000) analysis on the CSAS-Original showed that the individual subscales derived from the original eight components correlated quite highly with one another (See Table 4 in Shiarella et al., 2000).

**Exploratory Factor Analysis**

First, we ran an EFA designed to request between five and nine factors, as there was theoretical and statistical justification for factors within this range (Preacher, Zhang, & Mels, 2013). The final eight-factor solution shows a reasonable fit to data and was the best-fitting model as compared to the other factor models (for specific model fit values see Table 2 in supplementary materials). To reduce the number of items, all items were dropped that had a primary factor loading of less than .7 (Tabachnick & Fidell, 2007). We also removed any items that did not primarily load on Shiarella et al.'s (2000) hypothesized factors corresponding to Schwartz's (1977) theory. The resulting eight-factor solution was reduced to 24 items, with between two and five items loading on each factor and the model having simple structure (defined in the current study as having no cross-loadings greater than .2).

**Confirmatory Factor Analysis**

Once we had created a brief version of the CSAS using EFA, we conducted a CFA on the 24-item CSAS-Brief using the second sample to confirm that the items loaded consistently on the hypothesized factors. The model was a good fit to the data (for specific model fit values see Table 2 in supplementary materials), and the items loaded as expected on the corresponding factors. All items loaded at .68 or above (Table 1). Factors correlated in magnitude between .02 to .58, with more than half of the factor correlations being above .3, justifying the Geomin rotation allowing for correlated factors (see Table 3 in supplementary materials). Reliability analyses were run for the subscales. All subscales demonstrated good reliability: αAWA = .96, αNOR = .94, αCON = .93, αRE-EFF = .92, αSER = .83, αCOS = .88, αBEN = .84, and αINT = .95.

**Theoretical Improvements of CSAS-Brief Scale**

The resulting CSAS-Brief scale demonstrates better theoretical match with Schwartz's model (see Table 1). For the Activation phase, all three factors for the CSAS-Brief had consistent match across the CSAS-Original (Shiarella et al., 2000) and Schwartz's model. For the Obligation phase, three items consistently matched the CSAS-Original and Schwartz's model, but to eliminate confusion with the normative helping behavior (NOR) items, the factor was more appropriately named Response Efficacy. For the Defense phase, seriousness and cost were consistent with the CSAS-Original and Schwartz's model, and were condensed to three and five items, respectively. Perceived benefits and perceived career benefits were collapsed into one factor which retained one item outlining career benefits; these items were consistent with the CSAS-Original and theoret-

ical model. Finally, the Response phase consisted of students' intentions toward civic engagement, which was comprised of two items consistent with the CSAS-Original and theoretical model. The majority of items that were cut during item reduction in the EFA did not load highly onto any factors and demonstrated a mismatch between the CSAS-Original and Schwartz's theoretical model (see Table 1 of supplementary materials to see specific items).

**Validity Check of CSAS-Brief Scale**

The CSAS-Brief scale is useful to the extent that it is related to, but distinct from, existing measures of similar constructs. Table 2 presents a correlation matrix between the full-scale and subscales of the CSAS-Brief and measures of empathy, academic motivation, and personality. Overall, the CSAS-Brief total score correlated positively with openness, extraversion, conscientiousness, agreeableness, empathy, and academic motivation, and negatively with neuroticism, though all correlations were small to moderate. The CSAS-Brief factors correlated as expected with the personality traits, academic motivation, and empathy, though awareness did not correlate highly with the personality traits and neuroticism did not correlate consistently with the CSAS-Brief factors.

In order to examine demographic differences on the CSAS-Brief and the eight subscales, we ran ANOVAs and t-tests on gender and ethnicity (Table 3). First, there was significant evidence that CSAS-Brief scores differ based on gender, $F_{(2, 541)} = 8.48$, $p < .001$; women ($M = 5.41$, $SD = .67$) tend to score higher on the CSAS-Brief compared to men ($M = 5.11$, $SD = .74$). Moreover, women scored significantly higher than men on all subscales ($p$'s $< .05$) except for Awareness, Response Efficacy, and Costs ($p$'s $> .05$). Second, when examining whether the CSAS-Brief scores differed based on ethnicity, we found that Caucasian participants perceived less costs than non-Caucasian participants, $t_{(537)} = 3.46$, $p = .001$, and viewed the problem as less serious than non-Caucasian participants, $t_{(537)} = 2.29$, $p = .022$.

*Table 3. CSAS-Brief scores by demographics.*

| Scale/Subscale | Gender | | Ethnicity | |
|---|---|---|---|---|
| | Women | Men | Caucasian | Non-Caucasian |
| CSAS-Brief | **5.41 (.67)** | **5.12 (.74)** | 5.32 (.66) | 5.44 (.75) |
| Awareness | 6.33 (1.08) | 6.06 (1.18) | 6.33 (.93) | 6.17 (1.41) |
| Norms | **6.38 (.77)** | **6.09 (.92)** | 6.29 (.80) | 6.39 ( .83) |
| Response Efficacy | 5.80 (.93) | 5.60 (1.06) | 5.74 (.91) | 5.83 (1.06) |
| Connectedness | **5.67 (1.12)** | **5.22 (1.37)** | 5.59 (1.10) | 5.56 (1.34) |
| Costs | 3.51 (1.43) | 3.51 (1.38) | **3.36 (1.29)** | **3.84 (1.61)** |
| Benefits | **6.23 (.71)** | **5.75 (1.05)** | 6.11 (.78) | 6.19 (.86) |
| Seriousness | **5.11 (1.13)** | **4.56 (1.17)** | **4.92 (1.14)** | **5.17 (1.18)** |
| Intention | **5.71 (1.30)** | **5.12 (1.54)** | 5.64 (1.33) | 5.49 (1.43) |

DISCUSSION

The CSAS-Brief has potential as an important tool for student assessment in service learning, as it is theoretically based, demonstrates good psychometric properties (i.e., reliability and validity), and is a length that is feasible for quick assessment. It maintains many of the positive attributes of the original measure (Shiarella et al., 2000), such as demonstrating factors that are theoretically reflective of Schwartz's (1977) Model of Altruism, but has both theoretical and psychometric improvements.

The psychometric improvements include implementation of a more appropriate EFA, instead of PCA. Besides the CSAS-Original (Shiarella et al., 2000), other respected measures of community learning have examined factor structure using PCA (Gallini & Moely, 2003; Moely, Mercer, Ilustre, Miron, & McFarland, 2002). With advancements in understanding of scale development, it is now more commonly accepted that an EFA is a more appropriate approach. Moreover, the CSAS-Brief achieved simple structure, had good model fit, and had higher reliability scores for subscales (CSAS-Brief: $\alpha = 0.83 - 0.96$; CSAS-Original: $\alpha = 0.72 - 0.93$).

Although the results of our EFA had the same number of underlying factors as Shiarella et al.'s (2000) PCA, there was an improvement in how these factors mapped onto Schwartz's theory. Shiarella et al.'s (2000) largest factor with 11 items, Normative Helping Attitudes, was loaded onto both the first and second phases in Schwartz's model. The CSAS-Brief portioned these items into separate factors; Response efficacy provided a "recognition of one's own ability to provide relief" from the activation phase (first phase) while norms represented an "activation of preexisting or situationally constructed personal norms" under the obligation phase (second phase; Schwartz, 1977, p. 241). While Shiarella et al.'s (2000) CSAS-Original had separate factors for Benefits and Career Benefits, the CSAS-Brief was composed of a combined Benefits factor. Consistent with the CSAS-Original, Schwartz's Action factor was not evident in the items, and the item originally designed to measure this factor loaded highly in our analysis on the norms subscale.

The CSAS-Brief was correlated with all validation measures with agreeableness and empathy being most strongly related to community-service attitudes. Those scoring higher on expected personality characteristics, such as those open to new experiences, more extraverted, agreeable, conscientious, and less neurotic, expressed more favorable attitudes toward community service, in general. The magnitude of these associations was less when personality was examined across the phases and factors. The direction and magnitude of the correlations fit relatively well with previous research showing the relationship between personality traits and volunteerism (Carlo, Okun, Knight, & de Guzmsan, 2005). A similar association between academic motivation and community-service attitudes was found; the CSAS-Brief total score was moderately associated with higher internal and external academic motivation, though the phases and factors had lower correlations with the CSAS. Empathy was the most strongly related to community-service attitudes in magnitude, which further underscores its importance for this area.

**Limitations and Future Directions**

While the CSAS-Brief provides an improvement of the existing literature for measuring student attitudes toward service learning, the measure's potential needs to be further validated by being able to demonstrate change in response to an intervention (Anastasi & Urbina, 1997;

Cronbach & Meehl, 1955), as was accomplished using the CSAS-Original (see Cooper, Cripps, & Reisman, 2013; Downey, 2013; Williams & Sparks, 2011) and in quasi-experimental designs where community-based groups are compared to a comparison group (see Markus, Howard, & King, 1993; Reeb et al., 1998; Weber et al., 2004). Furthermore, some phases and factors could demonstrate improved psychometric properties with the addition or alternation of items, though the current study only examined items initially proposed in the CSAS-Original. For example, neither the CSAS-Original (Shiarella et al., 2000) nor CSAS-Brief addressed Schwartz's action factor, the idea that students perceive there are actions that could help. All of the items hypothesized to capture the action component loaded on the norm factor in our EFA. Future research should attempt to separate the norm and action constructs with additional items to capture Schwartz's (1977) action factor.

**Application of CSAS-Brief to Service-Learning Research in Higher Education**

With the current and enduring emphasis placed on the value of service learning in the university setting (Altman, 1996; Hwang, Wang, et al., 2014; Maloyed, 2016; Wang, 2013), quality assessment of these activities is critical (Roodin et al., 2013). The CSAS-Brief holds potential for providing a strong theoretically and psychometrically based measure with good validity that would be easy for faculty and teachers to administer to evaluate the impact of their service-learning activities on students' attitudes. The CSAS-Original (Shiarella et al., 2000) has been used in previous research with relative success, but the improvements outlined with the CSAS-Brief could result in more consistent and effective evaluation.

Faculty interested in investigating service learning for research or curriculum development could utilize this brief measure as a total score, with higher scores indicative of more favorable service-learning attitudes, or could analyze their students' service learning by investigating the individual factors or phases. For example, researchers could investigate student differences in service learning by adding the average scores for each phase to a regression equation predicting their outcome variables of interest and comparing the beta weights to examine which phase is stronger. Furthermore, researchers might be interested in one particular factor, such as whether the benefits outweigh the costs for predicting intent, or if there is an interaction between factors resulting in some students with certain combinations of factors performing differently than others. Finally, if a longitudinal study is possible, a pre-/post design utilizing the CSAS might convey which phase and/or factor was most impacted by a particular experience. Furthermore, those engaged in administering service-learning opportunities in higher education could use this as a tool for tailoring experiences to certain students (i.e., those who may have greater awareness or perceive higher costs), or to help them improve curriculum and experiences by using this tool as an objective measure. The measure could also be used to predict which students would be more likely to engage in this type of learning experience. In this manner, the CSAS-Brief can provide valuable feedback with the aims of improving service-learning experiences and attitudes integrated in higher education for those specifically interested in research related to service learning, and those looking to improve their personal effectiveness in administering service-learning experiences.

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